## SIEMENS

## Data sheet

## 6ES7531-7QD00-0AB0



SIMATIC S7-1500 Analog input module AI 4xU/I/RTD/TC ST, 16 bit resolution, Accuracy 0.3%, 4 channels in groups of 4; 2 channels for RTD measurement; Common mode voltage 10 V; Diagnostics; Hardware interrupts; Delivery including push-in front connector, infeed element, shield bracket, and shield terminal

General information	
Product type designation	AI 4xU/I/RTD/TC ST
HW functional status	From FS01
Firmware version	V1.0.0
<ul> <li>FW update possible</li> </ul>	Yes
Product function	
• I&M data	Yes; I&M0 to I&M3
<ul> <li>Isochronous mode</li> </ul>	No
<ul> <li>Prioritized startup</li> </ul>	No
<ul> <li>Measuring range scalable</li> </ul>	No
<ul> <li>Scalable measured values</li> </ul>	No
<ul> <li>Adjustment of measuring range</li> </ul>	No
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	V13 / V13.0.2
<ul> <li>STEP 7 configurable/integrated from version</li> </ul>	V5.5 SP3 / -
<ul> <li>PROFIBUS from GSD version/GSD revision</li> </ul>	V1.0 / V5.1
<ul> <li>PROFINET from GSD version/GSD revision</li> </ul>	V2.3 / -
Operating mode	
Oversampling	No
• MSI	Yes
CiR - Configuration in RUN	
Reparameterization possible in RUN	Yes
Calibration possible in RUN	Yes
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Input current	
Current consumption, max.	140 mA; with 24 V DC supply
Encoder supply	
24 V encoder supply	
Short-circuit protection	Yes
• Output current, max.	20 mA; Max. 47 mA per channel for a duration < 10 s
Power	
Power available from the backplane bus	0.7 W
Power loss	
Power loss, typ.	2.3 W

Number of analog inputs         4           • For current measurement         4           • For resistance/resistance thermometer measurement         2           • For resistance/resistance thermometer measurement         2           • For resistance/resistance thermometer measurement         2           • For resistance/resistance thermometer measurement or unage to value to va	Analog inputs	
		4
• For Voltage measurement         4           • For streament         2           • For streament         4           permissible inpla voltage for voltage input (destruction imm), max.         28.8 V           permissible inpla current for releatance-type transmitter, typ.         40 mA           Constant measurement unput (destruction imm), max.         40 mA           Constant measurement unput (destruction imm), max.         40 mA           Constant measurement unput (destruction imm), max.         600 Ohm, 600 Ohm, 600 Ohm, P100, P1200, N1000, L3-N1000, 0.825 mA, PTC; 0.472 mA           Constant measurement unput (destruction immain, max.         No           Standardization of measured values         No           • 10 to 5 V         Yes           - Input resistance (1V to 5 V)         Yes           - Input resistance (1V to 1V)         Yes           • Input resistance (250 mV to +25 V)         10 MΩ           • 250 mV to +25 mV         Yes           - Input resistance (50 mV to +25 mV)         10 MΩ           • 50 mV to +50 mV         Yes           - Input resis		
• For resistance/measurement         4           • For thermocouple measurement         4           • Permissible input voltage for voltage input (destruction minit, max.         28.8 V           minit, max.         28.8 V           permissible input current for current input (destruction minit, max.         40 mA           minit, max.         50 Ohm, 500 Ohm, P100, P1200, N100: 1.25 mA; 6.000           Technical unit for temperature measurement adjustable         Yes: "OF FK           • To 15 V         No           • To 15 V         Yes           • Input resistance (1V to 15 V)         Yes           • Input resistance (25 V to 25 V)         Yes           • Start Vol 250 mV         Yes           • Input resistance (25 m V to 250 mV)         Yes           • Stare Vo		
measurement         4           err thermocupie measurement         4           permissible input voltage for voltage input (destruction inmi), max.         28.8 V           permissible input current for current input (destruction inmi), max.         40 mA           Constant measurement current for resistance-type arrammiter, typ.         50.0 m, 300.0 m, 600.0 m, Pt100 Pt200 N1001 125.mA, 6.000.0 Pt000 N1000 IC-N10000 0625.mA; PTC: 0.472 mA           Technical unit for temperature measurement adjustable         Ves. "C/F/K           Analog input with oversampling         No           Standardization of measurement adjustable         Ves. "C/F/K           - Oto + 5V         No           - Oto + 1V to 5V         Yes           - Input resistance (1 V to 5 V)         Yes           - Input resistance (2 V to + 12 V)         Yes           - Input resistance (2 V to + 2.5 V)         Yes           - Input resistance (2 V to + 12 V)         Yes           - Input resistance (2 N to + 50 mV)         Yes           - Input resistance (2 M to + 50 mV)         Yes           - Input resistance (2 M to + 50 mV)         Yes           - Input	-	
permissible input voltage for voltage input (destruction imit), max.         28.8 V           permissible input current for current input (destruction imit), max.         40 mA           Constant measurement current for resistance-type farasmiter, typ.         50.0 hm, 600.0 hm, 600.0 hm, Pti00, Pt200, Nt100: 1.25 mA; 6.000 Mm, Pt000, Nt1000: 0.625 mA; PTC: 0.472 mA           Analog input with oversampling Standardization of measured values         No           Standardization of measured values         No           Input resistance (1 V to 5 V)         Yes           I V to 5 V         Yes           I hopt resistance (1 V to 1 V)         100 kD           Yes         I hopt resistance (2 V to 1 + 2.5 V)           Yes         I hopt resistance (2 5 V to 1 + 2.5 V)           Yes         I hopt resistance (2 5 V to 1 + 5 V)           Yes         I hopt resistance (2 5 V to 1 + 5 V)           Yes         I hopt resistance (2 5 V to 1 + 5 V)           Yes         I hopt resistance (2 N V to 1 + 50 mV) <td></td> <td></td>		
permissible input voltage for voltage input (destruction imit), max.         28.8 V           permissible input current for current input (destruction imit), max.         40 mA           Constant measurement unrent for resistance-type farasmiter, typ.         50 Ohm, 600 Ohm, Pti00, Pt200, N1000: 0.325 mA; PTC: 0.472 mA           Technical unit for temperature measurement adjustable         Yes; "C/Fix(           Analog input Whoressamping         No           Standardization of measured values         No           Input registrate (Tells values), voltages         No           - 10 to 5 V         No           - 10 to 5 V         Yes           Input resistance (1 V to 5 V)         No           Input resistance (1 V to 1 V)         100 KD           Input resistance (1 V to 1 V)         100 KD	For thermocouple measurement	4
permissible input current for current input (destruction imity, max.         40 mA           Constant measurement current for resistance-type dimarsmiter, typ.         150 Ohm, 300 Ohm, 600 Ohm, PH00, P1200, NH00: 1.25 mA; 6.000           Technical unit for temperature measurement adjustable         Yes; "C/Fix           Analog input with oversampling         No           Standardization of measured values         No           Input ranges (rated values), voltages         No           Input ranges (rated values), voltages         No           Input ranges (rated values), voltages         No           Input resistance (1 V to 5 V)         Yes           Input resistance (-1 V to +1 V)         100 kCD           Input resistance (-1 V to +1 V)         100 kCD           Input resistance (-1 V to +1 V)         100 kCD           Input resistance (-2.5 V to +2.5 V)         100 kCD           Ze mV to +25 mV         Yes           Input resistance (-5.5 V to +2.5 V)         100 MCD           Ze mV to +25 mV         Yes           Input resistance (-5.5 V to +2.5 V)         100 MCD           Ze mV to +50 mV         Yes           Input resistance (-50 mV to +50 mV)         100 MCD           So mV to +50 mV         Yes           Input resistance (-50 mV to +50 mV)         100 MCD	permissible input voltage for voltage input (destruction	28.8 V
Constant measurement current for resistance-type frammiter, typ.         150 Ohm, 300 Ohm, 800 Ohm, P100, P1200, N1001; 125 mA; 6 000 Ohm, P1000, N1000, LG-N1000; 0.625 mA; PTC; 0.472 mA           Technical unit for temperature measurement adjustable         No           Anatog input with oversampling         No           Standardization of measured values         No           Input ranges (rated values), voltages         No           Input ranges (rated values), voltages         No           Input ranges (rated values), voltages         No           Input resistance (1 V to 5 V)         No           I to 6 to 5 V         No           I to 1 to 5 V         No           I to 4 to 4 V         Yes           I hight resistance (1 V to 5 V)         100 KD           I to 2 to 2 SV         Yes           I hight resistance (-10 V to +10 V)         100 MD           I to 2 to 2 SV         Yes           I hight resistance (-250 mV to +25 M)         100 MD           I to 2 to 5 V         Yes           I hight resistance (-250 mV to +50 mV)         100 MD           I to 50 mV         to 50 mV           I hight resistance (-260 mV to +50 mV)         10 MD           I hight resistance (-30 mV to +50 mV)         10 MD           I hight resistance (-30 mV to +50 mV)         1	permissible input current for current input (destruction	40 mA
Technical unit for Imperature measurement adjustable         Yes: "C/F/K           Analog input with oversampling         No           Standardization of measured values         No           Input ranges (rated values), voltages         No           0 to +5 V         No           0 to +5 V         No           - Input resistance (1 V to 5 V)         100 kCD           - Input resistance (1 V to +1 V)         100 kCD           - Input resistance (-10 V to +10 V)         100 kCD           - Input resistance (-10 V to +10 V)         100 kCD           - Input resistance (-10 V to +10 V)         100 kCD           - E25 V to +25 V         Yes           - Input resistance (-10 V to +10 V)         100 kCD           - 25 W to +25 W         Yes           - Input resistance (-250 mV         Yes           - Input resistance (-250 mV)         100 MD           - S0 mV to +250 mV         Yes           - Input resistance (-250 mV to +50 mV)         100 MD           - S0 mV to +500 mV         Yes           - Input resistance (-30 mV to +50 mV)         10 MD           - S0 mV to +500 mV         Yes           - Input resistance (-30 mV to +50 mV)         10 MD           - S0 mV to +500 mV         Yes           - Input	Constant measurement current for resistance-type	
Standardzation of measured values         No           Input ranges (rated values), voltages         No           • 0 to +5 V         No           • 0 to +5 V         No           • 1 V to 5 V         Yes           - Input resistance (1 V to 5 V)         100 kΩ           • 1 V to 5 V         Yes           - Input resistance (1 V to +1 V)         Yes           - Input resistance (-10 V to +10 V)         100 kΩ           • 2.55 V to +2.5 V         Yes           - Input resistance (-10 V to +10 V)         100 kΩ           • 2.55 V to +2.5 V         Yes           - Input resistance (-50 mV to +25 mV)         10 MΩ           • 2.56 mV to +25 M         Yes           - Input resistance (-50 mV to +50 mV)         10 MΩ           • 500 mV to +50 mV         Yes           - Input resistance (-50 mV to +50 mV)         10 MΩ           • 500 mV to +50 mV         Yes           - Input resistance (-50 mV to +50 mV)         10 MΩ           • 500 mV to +50 mV         Yes           - Input resistance (-50 mV to +50 mV)         10 MΩ           • 500 mV to +50 mV         Yes           - Input resistance (-50 mV to +50 mV)         10 MΩ           • 200 mA         Yes           - Input	Technical unit for temperature measurement adjustable	Yes; °C/°F/K
Input ranges (rated values), voltages         No           • 0 to +5 V         No           • 0 to +10 V         No           • 1 V to 5 V         No           • - Input resistance (1 V to 5 V)         10 kΩ           • - Input resistance (1 V to +10 V)         Yes           Input resistance (-10 V to +10 V)         10 MΩ           • 10 V to +10 V         Yes           Input resistance (-25 V to +25 V)         10 MΩ           • - 258 mV to +25 mV         Yes           Input resistance (-25 V to +25 V)         10 MΩ           • - 258 mV to +25 mV         Yes           Input resistance (-25 V to +25 V)         10 MΩ           • - 258 mV to +25 mV         Yes           Input resistance (-50 mV to +250 mV)         10 MΩ           • - 250 mV to +250 mV         Yes           Input resistance (-50 mV to +50 mV)         10 MΩ           • Input resistance (-50 mV to +50 mV)         10 MΩ           • Input resistance (-50 mV to +50 mV)         10 MΩ           • Input resistance (-50 mV to +50 mV)         10 MΩ           •	Analog input with oversampling	No
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Standardization of measured values	No
• 0 to +10 V         No           • 1 V to 5 V         Yes           - Input resistance (1 V to 5 V)         100 kΩ           • - 1 V to +1 V         Yes           - Input resistance (-1 V to +1 V)         10 MΩ           • 10 V to +10 V         Yes           - Input resistance (-10 V to +10 V)         100 kΩ           • -25 V to +25 V         Yes           - Input resistance (-25 V to +25 V)         10 MΩ           • -255 mV to +25 mV         Yes           - Input resistance (-250 mV to +250 mV)         10 MΩ           • -255 mV to +25 mV         Yes           - Input resistance (-50 mV to +250 mV)         10 MΩ           • -50 mV to +50 mV         Yes           - Input resistance (-50 mV to +50 mV)         10 MΩ           • -50 mV to +50 mV         Yes           - Input resistance (-500 mV to +500 mV)         10 MΩ           • -50 mV to +50 mV         Yes           - Input resistance (-500 mV to +500 mV)         10 MΩ           • -500 mV to +50 mV         Yes           - Input resistance (-500 mV to +500 mV)         10 MΩ           • -10 to tesistance (-500 mV to +50 mV)         10 MΩ           • -10 topt resistance (-500 mV to +50 mV)         10 MΩ           • -10 topt resistance (-300 mA)	Input ranges (rated values), voltages	
• 1 V to 5 V         Yes           — Input resistance (1 V to 5 V)         100 kΩ           • -1 V to 1 V         Yes           — Input resistance (-1 V to +1 V)         10 MΩ           • 10 V to +10 V         Yes           — Input resistance (-10 V to +10 V)         100 kΩ           • -1 Input resistance (-25 V to +2.5 V)         10 MΩ           • -25 W to +2.5 W         Yes           — Input resistance (-25 0 mV         No           • -250 mV to +250 mV         No           • -250 mV to +250 mV         Yes           — Input resistance (-50 mV to +250 mV)         10 MΩ           • -500 mV to +50 mV         Yes           — Input resistance (-50 W to +50 mV)         10 MΩ           • 500 mV to +50 mV         Yes           — Input resistance (-50 W to +50 mV)         10 MΩ           • 0 to 20 mA         Yes           — Input resistance (-50 mV to +50 mV)         10 MΩ           Input resistance (-50 mV to +80 mV)         Yes           — Input resistance (-50 mV to +80 mV)         Yes           — Input resistance (-50 mA V)         Yes           — Input resistance (-50 mA V)         Yes           — Input resistance (-50 mA N)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           <	• 0 to +5 V	No
	• 0 to +10 V	No
• 1 V to +1 V         Yes           Input resistance (-1 V to +1 V)         10 MΩ           • 10 V to +10 V         Yes           Input resistance (-10 V to +10 V)         100 kΩ           • 2.5 V to +2.5 V         Yes           Input resistance (-25 V to +2.5 V)         10 MΩ           • 25 mV to +25 mV         No           • 250 mV to +25 mV         No           • 250 mV to +250 mV         Yes           Input resistance (-250 mV to +250 mV)         10 MΩ           • 550 mV to +50 mV         Yes           Input resistance (-50 mV to +250 mV)         10 MΩ           • 50 mV to +50 mV         Yes           Input resistance (-50 mV to +50 mV)         10 MΩ           • 500 mV to +50 mV         Yes           Input resistance (-50 mV to +50 mV)         10 MΩ           • 80 mV to +50 mV         Yes           Input resistance (-50 mV to +50 mV)         10 MΩ           • B0 mV to +80 mV         Yes           Input resistance (-50 mV to +30 mV)         10 MΩ           • 10 to 20 mA         Yes           Input resistance (-20 mA to +20 mA)         25 Ω, Plus approx. 42 ohms for overvoltage protection by PTC           • 4 mA to 20 mA         Yes           Input resistance (Typ	• 1 V to 5 V	Yes
	— Input resistance (1 V to 5 V)	100 kΩ
• -10 V to +10 V         Yes           - Input resistance (-10 V to +10 V)         100 kΩ           • 2.5 V to +2.5 V         Yes           - Input resistance (-10 V to +10 V)         100 kΩ           • 2.5 mV to +25 mV         No           • 250 mV to +25 mV         No           • 250 mV to +25 mV         No           • 250 mV to +25 mV         Yes           - Input resistance (-250 mV to +250 mV)         10 MΩ           • 5 V to +5 V         Yes           - Input resistance (-50 mV to +50 mV)         100 kΩ           • 500 mV to +50 mV         Yes           - Input resistance (-50 mV to +50 mV)         10 MΩ           • 500 mV to +50 mV         Yes           - Input resistance (-50 mV to +50 mV)         10 MΩ           • 500 mV to +50 mV         Yes           - Input resistance (-50 mV to +50 mV)         10 MΩ           • 500 mV to +50 mV         Yes           - Input resistance (-50 mV to +80 mV)         10 MΩ           Input resistance (-50 mV to +80 mV)         10 MΩ           Input resistance (-20 mA to +20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • A nk to 20 mA         Yes           - Input resistance (Type B)         10 MΩ           • Type B	• -1 V to +1 V	Yes
— Input resistance (-10 V to +10 V)         100 kΩ           • -2.5 V to +2.5 V         Yes           — Input resistance (-2.5 V to +2.5 V)         100 MΩ           • -250 mV to +250 mV         Yes           — Input resistance (-250 mV to +250 mV)         Yes           — Input resistance (-250 mV to +250 mV)         100 MΩ           • 5 V to +5 V         Yes           — Input resistance (-50 mV to +250 mV)         100 kΩ           • 50 mV to +50 mV         Yes           — Input resistance (-50 mV to +50 mV)         10 MΩ           • 500 mV to +500 mV         Yes           — Input resistance (-50 mV to +50 mV)         10 MΩ           • 500 mV to +500 mV         Yes           — Input resistance (-50 mV to +500 mV)         10 MΩ           • 500 mV to +500 mV         Yes           — Input resistance (-50 mV to +500 mV)         10 MΩ           • 10 to 20 mA         Yes           — Input resistance (-20 mA to +20 mA)         Yes           — Input resistance (-20 mA to +20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • 20 mA         Yes           — Input resistance (-20 mA to +20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • Type B         Yes           — Input re	— Input resistance (-1 V to +1 V)	10 MΩ
• -2.5 V to +2.5 V         Yes           — Input resistance (-2.5 V to +2.5 V)         10 MΩ           • -250 mV to +250 mV         No           • -250 mV to +250 mV         Yes           — Input resistance (-25 V to +250 mV)         10 MΩ           • -55 V to +5 V         Yes           — Input resistance (-50 mV to +250 mV)         100 MΩ           • -50 mV to +50 mV         Yes           — Input resistance (-50 mV to +50 mV)         100 MΩ           • -500 mV to +500 mV         Yes           — Input resistance (-50 mV to +50 mV)         10 MΩ           • -500 mV to +500 mV         Yes           — Input resistance (-50 mV to +50 mV)         10 MΩ           • -500 mV to +500 mV         Yes           — Input resistance (-50 mV to +50 mV)         10 MΩ           • -500 mV to +500 mV         Yes           — Input resistance (-50 mV to +50 mV)         10 MΩ           • -10 ruput resistance (-50 mV to +80 mV)         Yes           — Input resistance (-50 mV to +80 mV)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • 0 to 20 mA         Yes           — Input resistance (-20 mA to +20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • 10 mL resistance (-20 mA to +20 mA)         Yes	• -10 V to +10 V	Yes
• -2.5 V to +2.5 V         Yes           — Input resistance (-2.5 V to +2.5 V)         10 MΩ           • -250 mV to +250 mV         No           • -250 mV to +250 mV         Yes           — Input resistance (-25 V to +250 mV)         10 MΩ           • -55 V to +5 V         Yes           — Input resistance (-50 mV to +250 mV)         100 MΩ           • -50 mV to +50 mV         Yes           — Input resistance (-50 mV to +50 mV)         100 MΩ           • -500 mV to +500 mV         Yes           — Input resistance (-50 mV to +50 mV)         10 MΩ           • -500 mV to +500 mV         Yes           — Input resistance (-50 mV to +50 mV)         10 MΩ           • -500 mV to +500 mV         Yes           — Input resistance (-50 mV to +50 mV)         10 MΩ           • -500 mV to +500 mV         Yes           — Input resistance (-50 mV to +50 mV)         10 MΩ           • -10 ruput resistance (-50 mV to +80 mV)         Yes           — Input resistance (-50 mV to +80 mV)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • 0 to 20 mA         Yes           — Input resistance (-20 mA to +20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • 10 mL resistance (-20 mA to +20 mA)         Yes	— Input resistance (-10 V to +10 V)	100 kΩ
• -25 mV to +25 mV       No         • -250 mV to +250 mV       Yes         - Input resistance (-250 mV to +250 mV)       10 MΩ         • 5 V to +5 V       Yes         - Input resistance (-50 mV to +50 mV)       100 kΩ         • -50 mV to +50 mV       Yes         - Input resistance (-50 mV to +50 mV)       10 MΩ         • -500 mV to +500 mV       Yes         - Input resistance (-50 mV to +50 mV)       10 MΩ         • -500 mV to +500 mV       Yes         - Input resistance (-50 mV to +50 mV)       10 MΩ         • -1 mput resistance (-50 mV to +50 mV)       10 MΩ         • -1 mput resistance (-50 mV to +50 mV)       10 MΩ         • -1 mput resistance (-50 mV to +50 mV)       10 MΩ         Input resistance (-50 mV to +50 mV)       10 MΩ         Input resistance (-50 mV to +50 mV)       10 MΩ         Input resistance (-50 mA to +20 mA)       25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC         • -20 mA to +20 mA       Yes         - Input resistance (-10 mA)       25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC         • Papt resistance (-20 mA)       Yes         - Input resistance (Type B)       10 MΩ         • Type B       Yes         - Input resistance (Type B)       10 MΩ		Yes
- 250 mV to +250 mV         Yes           — Input resistance (-250 mV to +250 mV)         10 MΩ           • - SV to +5 V         Yes           — Input resistance (-50 to +5 V)         100 kΩ           • - S0 mV to +50 mV         Yes           — Input resistance (-50 mV to +50 mV)         10 MΩ           • - S00 mV to +50 mV         Yes           — Input resistance (-500 mV to +50 mV)         10 MΩ           • - S00 mV to +50 mV         Yes           — Input resistance (-500 mV to +50 mV)         10 MΩ           • - B0 mV to +80 mV         Yes           — Input resistance (-200 mV to +50 mV)         10 MΩ           • B0 mV to +80 mV         Yes           — Input resistance (-20 mA to +20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • Log trasistance (-20 mA)         Yes           — Input resistance (-20 mA)         Yes		10 ΜΩ
$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	• -25 mV to +25 mV	No
• -5 V to +5 V       Yes         — Input resistance (-5 V to +5 V)       100 kΩ         • -50 mV to +50 mV       Yes         — Input resistance (-50 mV to +50 mV)       10 MΩ         • -500 mV to +50 mV       Yes         — Input resistance (-50 mV to +50 mV)       10 MΩ         • - 1nput resistance (-50 mV to +50 mV)       10 MΩ         • - 1nput resistance (-50 mV to +50 mV)       10 MΩ         • - 1nput resistance (-80 mV to +80 mV)       10 MΩ         Input resistance (-80 mV to +80 mV)       10 MΩ         Input resistance (-80 mV to +80 mV)       10 MΩ         Input resistance (-180 mV to +80 mV)       10 MΩ         Input resistance (-180 mX to +80 mV)       25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC         • - 1nput resistance (0 to 20 mA)       25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC         • - 1nput resistance (-20 mA to +20 mA)       25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC         Input ranges (rated values), thermocouples       • Yes         • Type B       Yes         — Input resistance (Type B)       10 MΩ         • Type C       No         • Type F       Yes         — Input resistance (Type K)       10 MΩ         • Type K       Yes         — Input resist	• -250 mV to +250 mV	Yes
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	- Input resistance (-250 mV to +250 mV)	10 ΜΩ
• -50 mV to +50 mV         Yes           — Input resistance (-50 mV to +50 mV)         10 MΩ           • -500 mV to +500 mV         Yes           — Input resistance (-500 mV to +500 mV)         10 MΩ           • -80 mV to +80 mV         Yes           — Input resistance (-50 mV to +80 mV)         10 MΩ           Input resistance (-80 mV to +80 mV)         10 MΩ           Input resistance (-80 mV to +80 mV)         10 MΩ           Input resistance (-80 mV to +80 mV)         10 MΩ           Input resistance (-80 mV to +80 mV)         10 MΩ           Input resistance (-80 mV to +80 mV)         10 MΩ           Input resistance (-20 mA         Yes           — Input resistance (0 to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • A Ra to 20 mA         Yes           — Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (Type B         Yes           — Input resistance (Type B)         10 MΩ           • Type E         Yes           — Input resistance (Type E)         10 MΩ           • Type K         Yes           — Input resistance (Type K)	• -5 V to +5 V	Yes
• -50 mV to +50 mV         Yes           — Input resistance (-50 mV to +50 mV)         10 MΩ           • -500 mV to +500 mV         Yes           — Input resistance (-500 mV to +500 mV)         10 MΩ           • -80 mV to +80 mV         Yes           — Input resistance (-50 mV to +500 mV)         10 MΩ           • -80 mV to +80 mV         Yes           — Input resistance (-80 mV to +80 mV)         10 MΩ           Input ranges (rated values), currents         -           • 10 to 20 mA         Yes           — Input resistance (0 to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • 20 mA to +20 mA         Yes           — Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (Type B)         10 MΩ           • Type B         Yes           — Input resistance (Type B)         10 MΩ           • Type E         Yes           — Input resistance (Type E)         10 MΩ           • Type K         Yes           — Input resistance (Type K)	— Input resistance (-5 V to +5 V)	100 kΩ
• -500 mV to +500 mV         Yes           — Input resistance (-500 mV to +500 mV)         10 MΩ           • -80 mV to +80 mV         Yes           — Input resistance (-80 mV to +80 mV)         10 MΩ           Input ranges (rated values), currents         Volume           • 0 to 20 mA         Yes           — Input resistance (0 to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • -20 mA to +20 mA         Yes           — Input resistance (-20 mA to +20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • -1nput resistance (-20 mA to +20 mA)         Yes           — Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • Input resistance (4 mA to 20 mA)         Yes           — Input resistance (Type B)         10 MΩ           • Type B         Yes           — Input resistance (Type B)         10 MΩ           • Type C         No           • Input resistance (Type E)         10 MΩ           • Type K         Yes           — Input resistance (Type K)         Yes		Yes
• -500 mV to +500 mV         Yes           — Input resistance (-500 mV to +500 mV)         10 MΩ           • -80 mV to +80 mV         Yes           — Input resistance (-80 mV to +80 mV)         10 MΩ           Input ranges (rated values), currents         Volume           • 0 to 20 mA         Yes           — Input resistance (0 to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • -20 mA to +20 mA         Yes           — Input resistance (-20 mA to +20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • -1nput resistance (-20 mA to +20 mA)         Yes           — Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • Input resistance (4 mA to 20 mA)         Yes           — Input resistance (Type B)         10 MΩ           • Type B         Yes           — Input resistance (Type B)         10 MΩ           • Type C         No           • Input resistance (Type E)         10 MΩ           • Type K         Yes           — Input resistance (Type K)         Yes	- Input resistance (-50 mV to +50 mV)	10 ΜΩ
•-80 mV to +80 mV         Yes           — Input resistance (-80 mV to +80 mV)         10 MΩ           Input ranges (rated values), currents         Yes           • 0 to 20 mA         Yes           — Input resistance (0 to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • -20 mA to +20 mA         Yes           — Input resistance (-20 mA to +20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • Input resistance (-20 mA to ±0 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         Yes           — Input resistance (Type B)         10 MΩ           • Type C         No           • Type C         No           • Type F         Yes           — Input resistance (Type F)         10 MΩ           • Type K         Yes           — Input resistance (Type K)         Yes           — Input resistance (Type K)         Yes           — Input resistance (T		Yes
•-80 mV to +80 mV         Yes           — Input resistance (-80 mV to +80 mV)         10 MΩ           Input ranges (rated values), currents         Yes           • 0 to 20 mA         Yes           — Input resistance (0 to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • -20 mA to +20 mA         Yes           — Input resistance (-20 mA to +20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • Input resistance (-20 mA to ±0 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         Yes           — Input resistance (Type B)         10 MΩ           • Type C         No           • Type C         No           • Type F         Yes           — Input resistance (Type F)         10 MΩ           • Type K         Yes           — Input resistance (Type K)         Yes           — Input resistance (Type K)         Yes           — Input resistance (T	- Input resistance (-500 mV to +500 mV)	10 ΜΩ
Input ranges (rated values), currents         Yes           - Input resistance (0 to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           - 20 mA to +20 mA         Yes           - Input resistance (-20 mA to +20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • 4 mA to 20 mA         Yes           - Input resistance (-20 mA to +20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • 4 mA to 20 mA         Yes           - Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input ranges (rated values), thermocouples         Yes           - Input resistance (Type B)         10 MΩ           • Type C         No           • Type E         Yes           - Input resistance (Type E)         10 MΩ           • Type J         Yes           - Input resistance (type J)         10 MΩ           • Type K         Yes           - Input resistance (type J)         10 MΩ           • Type K         Yes           - Input resistance (Type K)         Yes           - Input resistance (Type K)         Yes           - Input resistance (Type N)         No           • Type R         Yes           - Input re		Yes
• 0 to 20 mAYes- Input resistance (0 to 20 mA)25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC• -20 mA to +20 mAYes- Input resistance (-20 mA to +20 mA)25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC• 4 mA to 20 mAYes- Input resistance (4 mA to 20 mA)25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC• 4 mA to 20 mAYes- Input resistance (4 mA to 20 mA)25 Ω; Plus approx. 42 ohms for overvoltage protection by PTCInput ranges (rated values), thermocouples10 MΩ• Type BYes- Input resistance (Type B)10 MΩ• Type CNo• Type EYes- Input resistance (Type E)10 MΩ• Type JYes- Input resistance (type L)10 MΩ• Type KYes- Input resistance (Type K)10 MΩ• Type INo• Type NYes- Input resistance (Type K)Yes- Input resistance (Type K)10 MΩ• Type NYes- Input resistance (Type K)10 MΩ• Type NYes- Input resistance (Type N)10 MΩ• Type RYes- Input resistance (Type N)10 MΩ• Type RYes- Input resistance (Type R)10 MΩ	— Input resistance (-80 mV to +80 mV)	10 ΜΩ
- Input resistance (0 to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           - 20 mA to +20 mA         Yes           - Input resistance (-20 mA to +20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • 4 mA to 20 mA         Yes           - Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (7 mages (rated values), thermocouples         10 MΩ           Input resistance (Type E)         10 MΩ           Input resistance (Type K)         10 MΩ           Input resistance (Type K)         10 MΩ           Input resistance (Type N)         10 MΩ		
• -20 mA to +20 mAYes- Input resistance (-20 mA to +20 mA)25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC• 4 mA to 20 mAYes- Input resistance (4 mA to 20 mA)25 Ω; Plus approx. 42 ohms for overvoltage protection by PTCInput resistance (4 mA to 20 mA)15 Ω; Plus approx. 42 ohms for overvoltage protection by PTCInput resistance (4 mA to 20 mA)25 Ω; Plus approx. 42 ohms for overvoltage protection by PTCInput resistance (4 mA to 20 mA)25 Ω; Plus approx. 42 ohms for overvoltage protection by PTCInput resistance (7 matching approx. 42 ohms for overvoltage protection by PTCInput resistance (1 matching approx. 42 ohms for overvoltage protection by PTCInput resistance (Type B)10 MΩFype CNoInput resistance (Type E)10 MΩYes- Input resistance (Type K)Yes- Input resistance (Type K)Yes- Input resistance (Type K)Yes- Input resistance (Type K)Yes- Input resistance (Type N)Yes- Input resistance (Type N)Yes- Input resistance (Type N)Yes- Input resistance (Type R)Yes- Inpu	• 0 to 20 mA	
Input resistance (-20 mA to +20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           • 4 mA to 20 mA         Yes           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (4 mA to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (7 ma to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (7 ma to 20 mA)         25 Ω; Plus approx. 42 ohms for overvoltage protection by PTC           Input resistance (Type B)         10 MΩ           Input resistance (Type K)         Yes           Input resistance (Type K)         10 MΩ           Input resistance (Type N)         10 MΩ           Input resistance (Type N)         10 MΩ           Input resistance (Type N)         10 MΩ           Input resistance (Type R)         Yes           Input resistance (Type R)         10 MΩ		25 $\Omega$ ; Plus approx. 42 ohms for overvoltage protection by PTC
• 4 mA to 20 mAYes— Input resistance (4 mA to 20 mA)25 Ω; Plus approx. 42 ohms for overvoltage protection by PTCInput ranges (rated values), thermocouplesYes— Input resistance (Type B)10 MΩ• Type CNo• Type EYes— Input resistance (Type E)10 MΩ• Type JYes— Input resistance (type E)10 MΩ• Type JYes— Input resistance (type L)10 MΩ• Type KYes— Input resistance (Type K)10 MΩ• Type LNo• Type LNo• Type NYes— Input resistance (Type N)10 MΩ• Type RYes— Input resistance (Type N)10 MΩ• Type RYes— Input resistance (Type N)10 MΩ• Type RYes— Input resistance (Type R)10 MΩ	• -20 mA to +20 mA	
— Input resistance (4 mA to 20 mA)25 Ω; Plus approx. 42 ohms for overvoltage protection by PTCInput ranges (rated values), thermocouplesYes• Type BYes— Input resistance (Type B)10 MΩ• Type CNo• Type EYes— Input resistance (Type E)10 MΩ• Type JYes— Input resistance (type E)10 MΩ• Type JYes— Input resistance (type J)10 MΩ• Type KYes— Input resistance (Type K)10 MΩ• Type LNo• Type RYes— Input resistance (Type R)10 MΩ• Type RYes— Input resistance (Type R)10 MΩ		25 $\Omega$ ; Plus approx. 42 ohms for overvoltage protection by PTC
Input ranges (rated values), thermocouples         • Type B       Yes         - Input resistance (Type B)       10 MΩ         • Type C       No         • Type E       Yes         - Input resistance (Type E)       10 MΩ         • Type J       Yes         - Input resistance (Type E)       10 MΩ         • Type J       Yes         - Input resistance (type J)       10 MΩ         • Type K       Yes         - Input resistance (type J)       10 MΩ         • Type K       Yes         - Input resistance (Type K)       10 MΩ         • Type L       No         • Type N       Yes         - Input resistance (Type N)       10 MΩ         • Type R       Yes         - Input resistance (Type N)       10 MΩ		
• Type BYes— Input resistance (Type B)10 MΩ• Type CNo• Type EYes— Input resistance (Type E)10 MΩ• Type JYes— Input resistance (type J)10 MΩ• Type KYes— Input resistance (Type K)10 MΩ• Type LNo• Type NYes— Input resistance (Type N)10 MΩ• Type RYes— Input resistance (Type N)10 MΩ• Type RYes— Input resistance (Type N)10 MΩ		25 $\Omega$ ; Plus approx. 42 ohms for overvoltage protection by PTC
- Input resistance (Type B)10 MΩ• Type CNo• Type EYes- Input resistance (Type E)10 MΩ• Type JYes- Input resistance (type J)10 MΩ• Type KYes- Input resistance (Type K)10 MΩ• Type LNo• Type NYes- Input resistance (Type N)10 MΩ• Type RYes- Input resistance (Type N)Yes- Input resistance (Type N)Yes- Input resistance (Type R)Yes- Input resistance (Type R)10 MΩ• Type RYes- Input resistance (Type R)10 MΩ		
• Type CNo• Type EYes- Input resistance (Type E)10 MΩ• Type JYes- Input resistance (type J)10 MΩ• Type KYes- Input resistance (Type K)10 MΩ• Type LNo• Type NYes- Input resistance (Type N)10 MΩ• Type RYes- Input resistance (Type R)10 MΩ	• Туре В	
• Type EYes— Input resistance (Type E)10 MΩ• Type JYes— Input resistance (type J)10 MΩ• Type KYes— Input resistance (Type K)10 MΩ• Type LNo• Type NYes— Input resistance (Type N)10 MΩ• Type RYes— Input resistance (Type N)10 MΩ• Type RYes— Input resistance (Type R)10 MΩ• Type RYes— Input resistance (Type R)10 MΩ		
— Input resistance (Type E)10 MΩ• Type JYes— Input resistance (type J)10 MΩ• Type KYes— Input resistance (Type K)10 MΩ• Type LNo• Type NYes— Input resistance (Type N)10 MΩ• Type RYes— Input resistance (Type R)10 MΩ• Type RYes• Type RYes• Type RYes• Input resistance (Type R)10 MΩ		No
• Type JYes— Input resistance (type J)10 MΩ• Type KYes— Input resistance (Type K)10 MΩ• Type LNo• Type NYes— Input resistance (Type N)10 MΩ• Type RYes— Input resistance (Type R)10 MΩ• Type RYes— Input resistance (Type R)10 MΩ	• Туре Е	
- Input resistance (type J)       10 MΩ         • Type K       Yes         - Input resistance (Type K)       10 MΩ         • Type L       No         • Type N       Yes         - Input resistance (Type N)       10 MΩ         • Type R       Yes         - Input resistance (Type N)       10 MΩ         • Type R       Yes         - Input resistance (Type R)       10 MΩ	— Input resistance (Type E)	10 ΜΩ
• Type K     Yes       — Input resistance (Type K)     10 MΩ       • Type L     No       • Type N     Yes       — Input resistance (Type N)     10 MΩ       • Type R     Yes       — Input resistance (Type R)     10 MΩ       • Type R     Yes       — Input resistance (Type R)     10 MΩ	● Туре Ј	
— Input resistance (Type K)     10 MΩ       • Type L     No       • Type N     Yes       — Input resistance (Type N)     10 MΩ       • Type R     Yes       — Input resistance (Type R)     10 MΩ       • Type R     Yes       — Input resistance (Type R)     10 MΩ	— Input resistance (type J)	
• Type L     No       • Type N     Yes       — Input resistance (Type N)     10 MΩ       • Type R     Yes       — Input resistance (Type R)     10 MΩ	• Туре К	
• Type N     Yes       - Input resistance (Type N)     10 MΩ       • Type R     Yes       - Input resistance (Type R)     10 MΩ	— Input resistance (Type K)	10 MΩ
— Input resistance (Type N)     10 MΩ       • Type R     Yes       — Input resistance (Type R)     10 MΩ	• Type L	No
• Type R Yes — Input resistance (Type R) 10 MΩ	• Type N	Yes
• Type R Yes — Input resistance (Type R) 10 MΩ	— Input resistance (Type N)	10 ΜΩ
— Input resistance (Type R) 10 MΩ		Yes
• Type S Yes	— Input resistance (Type R)	10 ΜΩ
	• Type S	Yes

— Input resistance (Type S)	10 ΜΩ
Type T	Yes
<ul> <li>Type T</li> <li>Input resistance (Type T)</li> </ul>	10 MΩ
• Type U	No
<ul> <li>Type 0</li> <li>Type TXK/TXK(L) to GOST</li> </ul>	No
Input ranges (rated values), resistance thermometer	NU
Cu 10	No
Cu 10 according to GOST	No
• Cu 50	No
Cu 50 according to GOST	No
• Cu 100	No
Cu 100 according to GOST	No
• Ni 10	No
Ni 10 according to GOST	No
• Ni 100	Yes; Standard/climate
— Input resistance (Ni 100)	10 MΩ
Ni 100 according to GOST	No
• Ni 1000	Yes; Standard/climate
— Input resistance (Ni 1000)	10 ΜΩ
Ni 1000 according to GOST	No
• LG-Ni 1000	Yes; Standard/climate
— Input resistance (LG-Ni 1000)	10 ΜΩ
• Ni 120	No
<ul> <li>Ni 120 according to GOST</li> </ul>	No
• Ni 200	No
<ul> <li>Ni 200 according to GOST</li> </ul>	No
• Ni 500	No
<ul> <li>Ni 500 according to GOST</li> </ul>	No
• Pt 10	No
<ul> <li>Pt 10 according to GOST</li> </ul>	No
• Pt 50	No
<ul> <li>Pt 50 according to GOST</li> </ul>	No
• Pt 100	Yes; Standard/climate
— Input resistance (Pt 100)	10 MΩ
<ul> <li>Pt 100 according to GOST</li> </ul>	No
• Pt 1000	Yes; Standard/climate
— Input resistance (Pt 1000)	10 ΜΩ
Pt 1000 according to GOST	No
• Pt 200	Yes; Standard/climate
— Input resistance (Pt 200)	10 MΩ
Pt 200 according to GOST	No Voc. Standard/climate
Pt 500     Input registered (Pt 500)	Yes; Standard/climate
<ul><li>— Input resistance (Pt 500)</li><li>• Pt 500 according to GOST</li></ul>	10 MΩ No
Pt 500 according to GOST Input ranges (rated values), resistors	
• 0 to 150 ohms	Yes
- Input resistance (0 to 150 ohms)	10 MΩ
• 0 to 300 ohms	Yes
- Input resistance (0 to 300 ohms)	10 MΩ
• 0 to 600 ohms	Yes
— Input resistance (0 to 600 ohms)	10 ΜΩ
• 0 to 3000 ohms	No
• 0 to 6000 ohms	Yes
— Input resistance (0 to 6000 ohms)	10 ΜΩ
• PTC	Yes
— Input resistance (PTC)	10 ΜΩ
Thermocouple (TC)	
Temperature compensation	
— parameterizable	Yes
<ul> <li>internal temperature compensation</li> </ul>	Yes

— external temperature compensation via RTD	Yes
<ul> <li>— Compensation for 0 °C reference point temperature</li> </ul>	Yes; fixed value can be set
— Reference channel of the module	No
Cable length	
<ul> <li>shielded, max.</li> </ul>	800 m; for U/I, 200 m for R/RTD, 50 m for TC
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
<ul> <li>Resolution with overrange (bit including sign), max.</li> </ul>	16 bit
Integration time, parameterizable	Yes
Integration time (ms)	2,5 / 16,67 / 20 / 100 ms
Basic conversion time, including integration time (ms)	9 / 23 / 27 / 107 ms
<ul> <li>additional conversion time for wire-break monitoring</li> </ul>	9 ms (to be considered in R/RTD/TC measurement)
<ul> <li>additional conversion time for resistance measurement</li> </ul>	150 ohm, 300 ohm, 600 ohm, Pt100, Pt200, Ni100: 2 ms, 6000 ohm, Pt500, Pt1000, Ni1000, LG-Ni1000, PTC: 4 ms
<ul> <li>Interference voltage suppression for interference frequency f1 in Hz</li> </ul>	400 / 60 / 50 / 10
Time for offset calibration (per module)	Basic conversion time of the slowest channel
Smoothing of measured values	
parameterizable	Yes
Step: None	Yes
Step: low	Yes
Step: Medium	Yes
Step: High	Yes
Encoder	
Connection of signal encoders	
for voltage measurement	Yes
<ul> <li>for current measurement as 2-wire transducer</li> </ul>	Yes
— Burden of 2-wire transmitter, max.	820 Ω Vez
<ul> <li>for current measurement as 4-wire transducer</li> <li>for registering measurement with two wire</li> </ul>	Yes
<ul> <li>for resistance measurement with two-wire connection</li> </ul>	Yes; Only for PTC
<ul> <li>for resistance measurement with three-wire connection</li> </ul>	Yes; All measuring ranges except PTC; internal compensation of the cable resistances
<ul> <li>for resistance measurement with four-wire connection</li> </ul>	Yes; All measuring ranges except PTC
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.02 %
Temperature error (relative to input range), (+/-)	0.005 %/K; With TC type T 0.02 ± % / K
Crosstalk between the inputs, max. Repeat accuracy in steady state at 25 °C (relative to input	-80 dB 0.02 %
range), (+/-)	±6 °C
Temperature error of internal compensation note regarding accuracy	at temperatures below 0 °C, the figures for operating error and
noto regarding accuracy	temperature error are doubled
Operational error limit in overall temperature range	
<ul> <li>Voltage, relative to input range, (+/-)</li> </ul>	0.3 %
<ul> <li>Current, relative to input range, (+/-)</li> </ul>	0.3 %
<ul> <li>Resistance, relative to input range, (+/-)</li> </ul>	0.3 %
<ul> <li>Resistance thermometer, relative to input range, (+/-)</li> </ul>	0.3 %; Ptxxx standard: ±1.5 K, Ptxxx climate: ±0.5 K, Nixxx standard: ±0.5 K, Nixxx climate: ±0.3 K
Thermocouple, relative to input range, (+/-)	0.3 %; Type B: > 600 °C ±4.6 K, type E: > -200 °C ±1.5 K, type J: > -210 °C ±1.9 K, type K: > -200 °C ±2.4 K, type N: > -200 °C ±2.9 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.6 K, type T: > -200 °C ±2.4 K
Basic error limit (operational limit at 25 °C)	
<ul> <li>Voltage, relative to input range, (+/-)</li> </ul>	0.1 %
<ul> <li>Current, relative to input range, (+/-)</li> </ul>	0.1 %
• Resistance, relative to input range, (+/-)	0.1 %
<ul> <li>Resistance thermometer, relative to input range, (+/-)</li> </ul>	0.1 %; Ptxxx standard: ±0.7 K, Ptxxx climate: ±0.2 K, Nixxx standard: ±0.3 K, Nixxx climate: ±0.15 K
<ul> <li>Thermocouple, relative to input range, (+/-)</li> </ul>	0.1 %; Type B: > 600 °C ±1.7 K, type E: > -200 °C ±0.7 K, type J: > -210

	°C ±0.8 K, type K: > -200 °C ±1.2 K, type N: > -200 °C ±1.2 K, type R: > 0 °C ±1.9 K, type S: > 0 °C ±1.9 K, type T: > -200 °C ±0.8 K
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 =	
<ul> <li>Series mode interference (peak value of interference &lt; rated value of input range), min.</li> </ul>	40 dB
Common mode voltage, max.	10 V
<ul> <li>Common mode interference, min.</li> </ul>	60 dB
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
Diagnostic alarm	Yes
Limit value alarm	Yes; two upper and two lower limit values in each case
Diagnoses	
<ul> <li>Monitoring the supply voltage</li> </ul>	Yes
Wire-break	Yes; Only for 1 to 5 V, 4 to 20 mA, TC, R, and RTD
Overflow/underflow	Yes
Diagnostics indication LED	
• RUN LED	Yes; green LED
• ERROR LED	Yes; red LED
<ul> <li>Monitoring of the supply voltage (PWR-LED)</li> </ul>	Yes; green LED
<ul> <li>Channel status display</li> </ul>	Yes; green LED
<ul> <li>for channel diagnostics</li> </ul>	Yes; red LED
<ul> <li>for module diagnostics</li> </ul>	Yes; red LED
Potential separation	
Potential separation channels	
<ul> <li>between the channels</li> </ul>	No
<ul> <li>between the channels, in groups of</li> </ul>	4
<ul> <li>between the channels and backplane bus</li> </ul>	Yes
<ul> <li>between the channels and the power supply of the electronics</li> </ul>	Yes
Permissible potential difference	
between the inputs (UCM)	20 V DC
Between the inputs and MANA (UCM)	10 V DC
Isolation	
Isolation tested with	707 V DC (type test)
Ambient conditions	
Ambient temperature during operation	
<ul> <li>horizontal installation, min.</li> </ul>	-25 °C; From FS03
<ul> <li>horizontal installation, max.</li> </ul>	60 °C
<ul> <li>vertical installation, min.</li> </ul>	-25 °C; From FS03
<ul> <li>vertical installation, max.</li> </ul>	40 °C
Altitude during operation relating to sea level	
<ul> <li>Installation altitude above sea level, max.</li> </ul>	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Dimensions	
Width	25 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	210 g
Other	
Note:	Supplied incl. 40-pole push-in front connectors. Additional basic error and noise for integration time = 2.5 ms: Voltage: ±250 mV (±0.02%), ±80 mV (±0.05%), ±50 mV (±0.05%); resistance: 150 Ohms (±0.02%); resistance thermometer: Pt100 climate: ±0.08 K, Ni100 climate: ±0.08 K; thermoelement: Type B, R, S: ±3 K, type E, J, K, N, T: ±1 K
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