SIEMENS

Data sheet

6ES7531-7NF10-0AB0



SIMATIC S7-1500 Analog input module AI 8xU/I HS, 16 bit resolution, Accuracy 0.3% 8 channels in groups of 8; Common mode voltage 10 V; Diagnostics; Hardware interrupts 8 channels in 0.0625 ms Oversampling; Delivery including infeed element, shield bracket and shield terminal: Front connector (screw terminals or push-in) to be ordered separately

Figure similar

General information	
Product type designation	AI 8xU/I HS
HW functional status	From FS01
Firmware version	V2.1.0
 FW update possible 	Yes
Product function	
● I&M data	Yes; I&M0 to I&M3
Isochronous mode	Yes
 Prioritized startup 	Yes
 Measuring range scalable 	No
 Scalable measured values 	No
 Adjustment of measuring range 	No
Engineering with	
 STEP 7 TIA Portal configurable/integrated from version 	V14 / -
 STEP 7 configurable/integrated from version 	V5.5 SP3 / -
 PROFIBUS from GSD version/GSD revision 	V1.0 / V5.1
 PROFINET from GSD version/GSD revision 	V2.3 / -
Operating mode	
Oversampling	Yes
• 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.	240 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 loss 34 W Analog inputs 8 Number of analog inputs 8 For current measurement 8 For voltage measurement 8 For current host collage input (destruction innt, max. 40 mA parmissite input voltage for voltage input (destruction innt, max. 40 mA parmissite input voltage for voltage input (destruction innt, max. 40 mA innt, max. 90 model (add voltage) - Input resistance (1 V to 5 V) 50 kD - Input resistance (1 V to 5 V) 50 kD - Input resistance (1 V to 5 V) 50 kD - Input resistance (1 V to 5 V) 50 kD - Input resistance (1 V to 5 V) 50 kD - Input resistance (1 V to 5 V) 50 kD - S2 m V to -250 mV No - S2 m V to -250 mV No - S2 m V to -250 mV No - S2 m V to -360 mV No - S0 m V to -360 mV No - S0 m V to -300 mA Yes - Input resistance (10 to 2 mA) Yes - Input resistance (10 to 2 m A) Yes - Input resis	Power available from the backplane bus	1.15 W
Power loss, typ. 3.4 W Analog inputs 8 • For current measurement 8 • For current measurement 8 • For voltage for voltage input (destruction infit, max. 28.8 V • Infit, max. 40 mA • Oto +5 V • • Oto +10 V • • Oto +5 V • • Oto +10 V Ves - Input resistance (+0 V to +10 V) 100 kΩ • 25 M to +25 M No • S to to +5 V Yes - Input resistance (+0 V to +10 V) No • S to to +5 V Yes - Input resistance (+0 V to +10 V) No • S to to +5 V Yes - Input resistance (+0 V to +10 V) No • S to		
Anabog Input: 8 Number of analog inputs 8 + For current measurement 8 - For voltage measurement 8 - Browner input voltage for voltage apolt (destruction int), max. 40 mA - Imput resistance (rater voltages), voltages 40 mA - 0 to +5V No - 0 to +10V Yes - 0 to th +25 mV No - 250 mV to +250 mV No - 600 mV to +260 mV No - 600 mV to +50 mV No - 600 mV to +60 mV No - 0 mout resistance (ro to 20 mA) 410, Plus approx. 42 ohms for overvoltage protection by PTC - 0 mout resistance (ro to 20 mA) 410, Plus approx. 42 ohms for		34W
Number of analog inputs 8 - For variant measurement 8 - For variage measurement 8 permissible input votage for votage input (destruction min), max. 28.8 V permissible input current input (destruction 40 mA max frages (faide values), vottages 40 mA mod mapses 10 to 15 V No - Input resistance (1 V to 5 V) Ves - - Input resistance (1 V to 5 V) Ves - Input resistance (1 V to 10 V Yes - Input resistance (-5 V to +5 V) S0 KD S0 M V to +20 mV S0 m V to +50 m V Yes - Input resistance (-5 V to +5 V) S0 KD No Input resistance (-20 mA) + 10 (Plus approx. 42 ohms for overvoltage protection by PTC Input resistance (-1 An to 20 mA)		
• For current measurement 8 • For voltage measurement 8 • permission paid current for current input (destruction Imit); max. 28.8 V • Din = 5V 40 mA • Din = 5V No • 0 to = 10 V No • 10 to = 5V No • 10 to = 5V No • 10 to = 10 V No • 10 to + 10 V No • 10 to + 10 V Yes - Input resistance (1 V to 5 V) 50 kD • 250 mV to +25 V No • 250 mV to +25 mV No • 250 mV to +25 mV Yes - Input resistance (5 V to 5 V) Yes - Input resistance (5 V to 5 V) Yes • 0 to 20 mA Yes - Input resistance (2 N to A) Yes <td></td> <td>8</td>		8
• For voltage measurement 8 permissible input voltage input (destruction 28.8 V permissible input current for current input (destruction 40 mA minut ranges (rande values), voltages 40 mA • 0.0 + 6 V No • 0.0 + 6 V No • 0.0 + 6 V No • 10 to 5 V Yes - Input resistance (1 V to 5 V) 50 kQ. • 10 V to 5 V Yes - Input resistance (-10 V to +10 V) 100 kAQ. • 2.5 W to +2.5 V No • 2.5 W to +2.5 W No • 2.5 W to +2.5 W No • 2.5 W to +5 V Yes - Input resistance (-10 V to +10 V) 100 kAQ • 5.5 W to +5 W Yes - Input resistance (-10 V to +10 V) 100 kAQ • 5.0 mV to +50 mV No • 5.0 mV to +50 mV No • 5.0 mV to +50 mV No • 5.0 mV to +80 mV No • 10 mA +80 mV No • 10 mA +80 mV No • 10 mA +10 mA Yes - Input resist		
permissible includinge for voltage input (destruction imit), max. 28.8 V permissible input current for current input (destruction imit), max. 40 mA Imput ranges (caled values), voltages 40 mA • 0 to +5V No • 0 to +10V No • 0 to +10V No • 10V to +10V Yes - Input resistance (1 V to 5 V) 50 kΩ • 0 to +25V No • 255 Vto +25 V No • 250 mV to +250 mV No • 250 mV to +250 mV No • 0 to 20 mA Yes - Input resistance (5 V to +5 V) 50 kΩ • 0 to 20 mA Yes - Input resistance (5 V to +5 V) 50 kΩ • 0 to 20 mA Yes - Input resistance (2 N a to +20 mA) Yes - Input resistance (4 to 20 mA) Yes - Input resistance (4 to 20 mA) Yes - Input resistance (4 nA to 20 mA) Yes - Input resistance (4 nA to 20 mA) Yes - Type B No 'Type B No 'Type F No		
Imit, max. 40 mA imit, max. 40 mA imit, max. 40 mA imit, max. No 0 to +5 V No 0 to +10 V No - Input resignes (rated values), voltages Yes - Input resignes (rated values), voltages No -2.55 VI to +25 V No -2.55 VI to +25 V No -2.50 mV to +250 mV No -500 mV to +500 mV No -500 mV to +500 mV No -500 mV to +500 mV No -100 trainsistance (10 to 20 mA) Yes - Input resistance (10 to 20 mA) Yes - Input resistance (10 to 20 mA) Yes - Input resistance (20 mA to 20 mA) Yes - Input resistance (4 mA to 20 mA) Yes - Input resistance (4	-	
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• 0 to +5 V No • 0 to +10 V No • 11 V to 5 V Yes - Input resistance (1 V to 5 V) 50 kΩ • 10 V to +10 V Yes - Input resistance (1 0 V to +10 V) 100 kΩ • 2.5 V to +2.5 V No • 2.5 V to +2.5 V No • 2.5 W to +2.5 W No • 2.5 W to +2.5 W No • -2.5 W to +2.5 W No • 0.5 V to +5 V Yes - Input resistance (-5 V to +5 V) 50 kΩ • 500 mV to +50 mV No • 000 mV to +50 mV No • 000 20 mA Yes - Input resistance (10 0 20 mA) 41 Ω; Plus approx. 42 ohms for overvoitage protection by PTC • 00 a 20 mA Yes - Input resistance (20 mA to +20 mA) 41 Ω; Plus approx. 42 ohms for overvoitage protection by PTC Input resistance (20 mA to +20 mA) 41 Ω; Plus approx. 42 ohms for overvoitage protection by PTC Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoitage protection by PTC Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoitage protection by PTC	limit), max.	40 mA
• 0 to +10 V No • 1 V to 5 V Yes - Input resistance (1 V to 5 V) 50 kΩ • 10 V to +10 V Yes - Input resistance (-10 V to +10 V) 100 kΩ • -25 V to +25 V N0 • -25 Tr V to +25 mV N0 • -30 mV to +30 mV N0 • -50 mV to +50 mV N0 • -1 mput resistance (10 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • -1 mput resistance (20 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • Type B N0 • Type F N0 • Type F N0 • Type F N0 • Type R N0 • Type R N0 • Type TXK/TXK(L) to GOST <td>Input ranges (rated values), voltages</td> <td></td>	Input ranges (rated values), voltages	
• 1 V to 5 V Yes — Input resistance (1 V to 5 V) 50 kΩ • 10 V to +10 V Yes — Input resistance (10 V to +10 V) 100 kΩ • 2.5 V to +25 N No • 5 V to +50 N Yes — Input resistance (5 V to +5 V) 50 kΩ • 6 On V to +50 mV No • -500 mV to +500 mV No • -500 mV to +300 mV No • -1nput resistance (10 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • -1nput resistance (20 mA to +20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • Type B No - • Type B No - • Type B No - • Type F No -	• 0 to +5 V	No
	• 0 to +10 V	No
• -10 V to +10 V Yes	• 1 V to 5 V	Yes
	 Input resistance (1 V to 5 V) 	50 kΩ
• 2.5 V io +2.5 V No • -25 mV to +25 mV No - 250 mV to +250 mV No • 5 V to +5 V Yes - Input resistance (-5 V to +5 V) 50 kΩ • 500 mV to +500 mV No • 500 mV to +500 mV No • 500 mV to +500 mV No • 30 mV to +500 mV No • 30 mV to +500 mV No • 30 mV to +300 mV No • 30 mV to +300 mV No • 1mput resistance (10 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • 1mput resistance (12 m A to +20 mA) Yes - Input resistance (4 mA to +20 mA) Yes - Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Type B . No • Type B No • Type B No • Type B No • Type I No • Type R No • Type R No • Type TXVTXK(L) to GOST No • Type TXVTXK(L) to GOST No	• -10 V to +10 V	Yes
- 25 mV to +25 mV No - 250 mV to +250 mV No - 5 V to +5 V Yes - Input resistance (-5 V to +5 V) 50 kΩ - 50 mV to +50 mV No - 50 mV to +50 mV No - 50 mV to +50 mV No - 500 mV to +50 mV No - 500 mV to +50 mV No - 500 mV to +50 mV No - 1nput resistance (0 to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC - 20 mA to +20 mA Yes Input resistance (-20 mA to +20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC - Input resistance (-20 mA to +20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC - Input resistance (-20 mA to +20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC - Type R No No - Type B No No - Type B No No - Type F No No - Type F No No - Type T No No - Type T No No	— Input resistance (-10 V to +10 V)	100 kΩ
- 250 mV to +250 mV No Input resistance (-5 V to +5 V) Yes S0 mV to +50 mV No S00 mV to +500 mV No S00 mV to +500 mV No S00 mV to sho0 mV No Input resistance (0 to 20 mA) Yes Input resistance (-20 mA to +20 mA) Yes Input resistance (-20 mA to +20 mA) Yes Input resistance (-20 mA to ±20 mA) Yes Type B No Type B No Type B No	• -2.5 V to +2.5 V	No
$ \begin{array}{c c c c c c } \cdot 5 V \text{ to } +5 V & Yes \\ - \mbox{ Input resistance (-5 V to +5 V) & 50 k\Omega \\ \cdot 50 mV to +50 mV & No \\ \cdot 500 mV to +500 mV & No \\ \cdot 30 mV to +80 mV & No \\ \hline \hline \end{transformation} \\ \cdot 30 mV to +80 mV & No \\ \hline \end{transformation} \\ \hline \end{transformation} \\ \cdot 30 mV to +80 mV & No \\ \hline \end{transformation} \\ \cdot 30 mV to +80 mV & No \\ \hline \end{transformation} \\ \cdot 30 mV to +80 mV & No \\ \hline \end{transformation} \\ \cdot 30 mV to +80 mV & No \\ \hline \end{transformation} \\ \cdot 30 mV to +80 mV & No \\ \hline \end{transformation} \\ \cdot 1 \mbox{ put resistance (10 to 20 mA) & 41 \Omega; Plus approx. 42 ohms for overvoltage protection by PTC \\ \cdot 20 m A to +20 mA & Yes \\ - \mbox{ Input resistance (-20 mA to +20 mA) & 41 \Omega; Plus approx. 42 ohms for overvoltage protection by PTC \\ \hline \end{transformation} \\ \cdot \end{transformation} \\ \cdot$	• -25 mV to +25 mV	No
— Input resistance (-5 V to +5 V) 50 kΩ • 50 mV to +50 mV No • -500 mV to +50 mV No • -500 mV to +50 mV No • 0 to 20 mA Yes Input resistance (0 to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • - 20 mA to +20 mA Yes Input resistance (10 mA to +20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • 4 mA to 20 mA Yes Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • 1mput ranges (rated values); thermocouples Yes • Type B No • Type B No • Type B No • Type R No • Type T No • Type T No • Type T No • Cu 10 Costonding to GOST • Cu	• -250 mV to +250 mV	No
• 50 mV to +50 mV No • 500 mV to +500 mV No • 60 mV to +80 mV No Input ranges (rated values), currents • • 1 to 20 mA Yes	• -5 V to +5 V	Yes
• 500 mV to +500 mV No • 80 mV to +80 mV No Input ranges (rated values), currents • • 10 to 20 mA Yes - Input resistance (0 to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • 20 mA to +20 mA Yes - Input resistance (-20 mA to +20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • 4 mA to 20 mA Yes - Input resistance (-4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Input ranges (rated values), thermocouples • • Type B No • Type B No • Type B No • Type B No • Type J No • Type K No • Type K No • Type N No • Type N No • Type R No • Type T No </td <td>— Input resistance (-5 V to +5 V)</td> <td>50 kΩ</td>	— Input resistance (-5 V to +5 V)	50 kΩ
80 mV to +80 mV No Input ranges (rated values), currents - • 0 to 20 mA Yes	 -50 mV to +50 mV 	No
Input ranges (rated values), currents Yes - Input resistance (0 to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC - Unput resistance (-20 mA to +20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC - Input resistance (-20 mA to +20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • 4 mA to 20 mA Yes - Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Input ranges (rated values), thermocouples No • Type B No • Type C No • Type J No • Type K No • Type R No • Type R No • Type R No • Type S No • Type R No • Type R No • Type TXK/TXK(L) to GOST No • Cu 10 No • Cu 10 No • Cu 100 No	 -500 mV to +500 mV 	No
• 0 to 20 mA Yes - Input resistance (0 to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • -20 mA to +20 mA Yes - Input resistance (-20 mA to +20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • 4 mA to 20 mA Yes - Input resistance (-20 mA to +20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Input ranges (rated values), thermocouples Yes • Type B No • Type F No • Type K No • Type R No • Cu 10 No • Cu 10 according to GOST No • Cu 100 No •	• -80 mV to +80 mV	No
- Input resistance (0 to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • - 20 mA to +20 mA Yes - Input resistance (-20 mA to +20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC • 4 mA to 20 mA Yes - Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Input resistance thermocouples No Type E No Type K No Type N No Type N No Type N No Type S No Type T No Cu 10 No Cu 50 No </td <td>Input ranges (rated values), currents</td> <td></td>	Input ranges (rated values), currents	
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• 4 mA to 20 mA Yes — Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Input ranges (rated values), thermocouples No • Type B No • Type C No • Type FE No • Type J No • Type K No • Type N No • Type N No • Type N No • Type R No • Type T No • Type T K/TXK/L(L) to GOST No • Cu 10 No • Cu 10 according to GOST No • Cu 100 No • Ni 100 No • Ni 100 No • Ni 100 No • Ni 1000 No	 -20 mA to +20 mA 	Yes
- Input resistance (4 mA to 20 mA) 41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC Input ranges (rated values), thermocouples No • Type B No • Type C No • Type J No • Type K No • Type R No • Type N No • Type R No • Type R No • Type S No • Type S No • Type T No • Type T KK/TXK(L) to GOST No • Cu 10 No • Cu 10 according to GOST No • Cu 100 No • Cu 100 No • Cu 100 No • Cu 100 No • Cu 100 according to GOST No • Ni 10 No • Ni 10 according to GOST No • Ni 100 No • Ni 100 according to GOST No • Ni 100 according to GOST No • Ni 100 according to GOST No • Ni 1000	 Input resistance (-20 mA to +20 mA) 	41 Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
Input ranges (rated values), thermocouples• Type BNo• Type CNo• Type ENo• Type KNo• Type KNo• Type NNo• Type NNo• Type RNo• Type TNo• Type TNo• Type TNo• Type T transformed• Cu 10No• Cu 10 according to GOSTNo• Cu 100No• Cu 100 according to GOSTNo• Ni 10No• Ni 100No• Ni 100No• Ni 100No• Ni 100No• Ni 1000No• Ni 1000No	• 4 mA to 20 mA	Yes
• Type B No • Type C No • Type E No • Type J No • Type K No • Type L No • Type N No • Type R No • Type R No • Type T No • Type T KK/TXK(L) to GOST No • Type T KK/TXK(L) to GOST No • Cu 10 No • Cu 10 according to GOST No • Cu 50 according to GOST No • Cu 100 No • Ni 10 No • Ni 10 No • Ni 10 according to GOST No • Ni 100 according to GOST No • Ni 100 according to GOST No • Ni 100 according to GOST No • Ni 1000 No <td< td=""><td> Input resistance (4 mA to 20 mA) </td><td>41 Ω; Plus approx. 42 ohms for overvoltage protection by PTC</td></td<>	 Input resistance (4 mA to 20 mA) 	41 Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
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• Type SNo• Type TNo• Type TXK/TXK(L) to GOSTNoInput ranges (rated values), resistance thermometer• Cu 10No• Cu 10 according to GOSTNo• Cu 50No• Cu 50 according to GOSTNo• Cu 100No• Cu 100 according to GOSTNo• Cu 100 according to GOSTNo• Cu 100 according to GOSTNo• Ni 10No• Ni 10No• Ni 10 according to GOSTNo• Ni 100 according to GOSTNo• Ni 1000No• Ni 1000No <td>• Type N</td> <td>No</td>	• Type N	No
• Type TNo• Type TXK/TXK(L) to GOSTNoInput ranges (rated values), resistance thermometer• Cu 10No• Cu 10 according to GOSTNo• Cu 50No• Cu 50 according to GOSTNo• Cu 100No• Cu 100 according to GOSTNo• Cu 100 according to GOSTNo• Ni 100 according to GOSTNo• Ni 10 according to GOSTNo• Ni 10 according to GOSTNo• Ni 100 according to GOSTNo• Ni 1000No• Ni 1000No• Ni 1000No• Ni 1000 according to GOSTNo• Ni 1000 according to GOSTNo	• Type R	No
Type TXK/TXK(L) to GOSTNoInput ranges (rated values), resistance thermometer• Cu 10No• Cu 10 according to GOSTNo• Cu 50No• Cu 50 according to GOSTNo• Cu 100No• Cu 100 according to GOSTNo• Cu 100 according to GOSTNo• Ni 10No• Ni 10 according to GOSTNo• Ni 10 according to GOSTNo• Ni 10 according to GOSTNo• Ni 100 according to GOSTNo• Ni 100 according to GOSTNo• Ni 100 according to GOSTNo• Ni 1000No• Ni 1000No• Ni 1000No• Ni 1000 according to GOSTNo• Ni 1000 according to GOSTNo		No
Input ranges (rated values), resistance thermometer• Cu 10No• Cu 10 according to GOSTNo• Cu 50No• Cu 50 according to GOSTNo• Cu 100No• Cu 100 according to GOSTNo• Ni 10No• Ni 10No• Ni 10 according to GOSTNo• Ni 10 according to GOSTNo• Ni 10 according to GOSTNo• Ni 100No• Ni 100 according to GOSTNo• Ni 100 according to GOSTNo• Ni 100 according to GOSTNo• Ni 1000No• Ni 1000No• Ni 1000No• Ni 1000 according to GOSTNo	• Туре Т	No
• Cu 10No• Cu 10 according to GOSTNo• Cu 50No• Cu 50 according to GOSTNo• Cu 100No• Cu 100 according to GOSTNo• Ni 10No• Ni 10No• Ni 10 according to GOSTNo• Ni 10 according to GOSTNo• Ni 100No• Ni 100 according to GOSTNo• Ni 1000No• Ni 1000No• Ni 1000 according to GOSTNo		No
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• Cu 100 according to GOST No • Ni 10 No • Ni 10 according to GOST No • Ni 100 according to GOST No • Ni 1000 No • Ni 1000 according to GOST No		
Ni 10No• Ni 10 according to GOSTNo• Ni 100No• Ni 100 according to GOSTNo• Ni 1000 according to GOSTNo• Ni 1000 according to GOSTNo• Ni 1000 according to GOSTNo		
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Ni 1000 No Ni 1000 according to GOST No		No
Ni 1000 according to GOST No	 Ni 100 according to GOST 	No
5	• Ni 1000	No
• LG-Ni 1000 No	 Ni 1000 according to GOST 	No
	• LG-Ni 1000	No

• Ni 120	No
 Ni 120 according to GOST 	No
• Ni 200	No
 Ni 200 according to GOST 	No
• Ni 500	No
 Ni 500 according to GOST 	No
• Pt 10	No
 Pt 10 according to GOST 	No
• Pt 50	No
 Pt 50 according to GOST 	No
• Pt 100	No
 Pt 100 according to GOST 	No
• Pt 1000	No
 Pt 1000 according to GOST 	No
• Pt 200	No
 Pt 200 according to GOST 	No
• Pt 500	No
Pt 500 according to GOST	No
Input ranges (rated values), resistors	
• 0 to 150 ohms	No
• 0 to 300 ohms	No
• 0 to 600 ohms	No
• 0 to 3000 ohms	No
• 0 to 6000 ohms	No
• PTC	No
Cable length	
 shielded, max. 	800 m
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
 Resolution with overrange (bit including sign), max. 	16 bit
Basic execution time of the module (all channels	$62.5 \ \mu s$; independent of number of activated channels
 Basic execution time of the module (all channels released) 	62.5 μ s; independent of number of activated channels
Basic execution time of the module (all channels released) Smoothing of measured values	
Basic execution time of the module (all channels released) Smoothing of measured values parameterizable	Yes
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None 	Yes Yes
Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low	Yes Yes Yes
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium 	Yes Yes Yes Yes
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High 	Yes Yes Yes
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder 	Yes Yes Yes Yes
Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders	Yes Yes Yes Yes Yes
Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement	Yes Yes Yes Yes Yes
Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer	Yes Yes Yes Yes Yes
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer Burden of 2-wire transmitter, max. 	Yes Yes Yes Yes Yes Yes Yes S20 Ω
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer 	Yes Yes Yes Yes Yes Yes Yes 820 Ω Yes
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire 	Yes Yes Yes Yes Yes Yes Yes S20 Ω
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with three-wire 	Yes Yes Yes Yes Yes Yes Yes 820 Ω Yes
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with three-wire connection 	Yes Yes Yes Yes Yes Yes 820 Ω Yes No
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with three-wire connection for resistance measurement with four-wire connection 	Yes Yes Yes Yes Yes Yes 820 Ω Yes No
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with three-wire connection for resistance measurement with four-wire 	Yes Yes Yes Yes Yes Yes 820 Ω Yes No No
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with three-wire connection for resistance measurement with four-wire connection Errors/accuracies Linearity error (relative to input range), (+/-) 	Yes Yes Yes Yes Yes Yes Yes 820 Ω Yes No No No
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for current measurement with two-wire connection for resistance measurement with two-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection 	Yes Yes Yes Yes Yes Yes Yes 820 Ω Yes No No No
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer 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 for resistance measurement with four-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection 	Yes Yes Yes Yes Yes Yes Yes 820 Ω Yes No No No
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with three-wire connection for resistance measurement with four-wire connection 	Yes Yes Yes Yes Yes Yes Yes 820 Ω Yes No No No
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for current measurement as 4-wire transducer for current 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 Errors/accuracies Linearity error (relative to input range), (+/-) Crosstalk between the inputs, max. Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) 	Yes Yes Yes Yes Yes Yes 820 Ω Yes No No No No
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer 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 Errors/accuracies Linearity error (relative to input range), (+/-) Temperature error (relative to input range), (+/-) Crosstalk between the inputs, max. Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) Operational error limit in overall temperature range 	Yes Yes Yes Yes Yes Yes 820 Ω Yes No No No No No No No
 Basic execution time of the module (all channels released) Smoothing of measured values parameterizable Step: None Step: low Step: Medium Step: High Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for current measurement as 4-wire transducer for current 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 Errors/accuracies Linearity error (relative to input range), (+/-) Crosstalk between the inputs, max. Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) 	Yes Yes Yes Yes Yes Yes 820 Ω Yes No No No No

Basic error limit (operational limit at 25 °C)	
 Voltage, relative to input range, (+/-) 	0.2 %
 Current, relative to input range, (+/-) 	0.2 %
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 =	interference frequency
 Common mode voltage, max. 	10 V
 Common mode interference, min. 	50 dB at 400 Hz; 60 dB at 60 / 50 / 10 Hz
Isochronous mode	
Filtering and processing time (TCI), min.	80 µs
Bus cycle time (TDP), min.	250 µs
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	
 Monitoring the supply voltage 	Yes
• Wire-break	Yes; only for 1 5 V and 4 20 mA
 Overflow/underflow 	Yes
Diagnostics indication LED	
RUN LED	Yes; green LED
ERROR LED	Yes; red LED
 Monitoring of the supply voltage (PWR-LED) 	Yes; green LED
 Channel status display 	Yes; green LED
 for channel diagnostics 	Yes; red LED
 for module diagnostics 	Yes; red LED
Potential separation	
Potential separation channels	
• between the channels	No
 between the channels, in groups of 	8
 between the channels and backplane bus 	Yes
 between the channels and the power supply of the electronics 	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	
 horizontal installation, min. 	-25 °C; From FS02
 horizontal installation, max. 	60 °C
 vertical installation, min. 	-25 °C; From FS02
 vertical installation, max. 	40 °C
Altitude during operation relating to sea level	
 Installation altitude above sea level, max. 	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	300 g
Woight, approx.	500 g
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