## SIEMENS

## Data sheet

## 6ES7144-5KD50-0BA0

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SIMATIC ET 200AL, AI 4xRTD/TC, 4x M12, degree of protection IP67

eneral information	
Product type designation	AI 4xRTD/TC
HW functional status	FS01
Firmware version	V1.0.x
Product function	
• I&M data	Yes; I&M0 to I&M3
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	STEP 7 V16 or higher
<ul> <li>STEP 7 configurable/integrated from version</li> </ul>	V5.5 SP4 and higher
<ul> <li>PROFIBUS from GSD version/GSD revision</li> </ul>	GSD as of Revision 5
<ul> <li>PROFINET from GSD version/GSD revision</li> </ul>	GSDML V2.34
upply voltage	
power supply according to NEC Class 2 required	No
Load voltage 1L+	
Rated value (DC)	24 V
<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
<ul> <li>permissible range, upper limit (DC)</li> </ul>	28.8 V
Reverse polarity protection	Yes; against destruction
iput current	
Current consumption (rated value)	25 mA; without load
from load voltage 1L+ (unswitched voltage)	4 A; Maximum value
from load voltage 2L+, max.	4 A; Maximum value
ower loss	
Power loss, typ.	0.6 W
nalog inputs	
Number of analog inputs	4
<ul> <li>For voltage measurement</li> </ul>	4
<ul> <li>For resistance/resistance thermometer measurement</li> </ul>	4
• For thermocouple measurement	4
permissible input voltage for voltage input (destruction limit), max.	15 V
Constant measurement current for resistance-type transmitter, typ.	230 300 µA
Cycle time (all channels), min.	90 ms
Technical unit for temperature measurement adjustable	Yes; Degrees Celsius / degrees Fahrenheit / Kelvin
Input ranges (rated values), voltages	
• -80 mV to +80 mV	Yes; 16 bit incl. sign
- Input resistance (-80 mV to +80 mV)	10 MΩ
Input ranges (rated values), thermocouples	
• Туре В	Yes; 16 bit incl. sign
— Input resistance (Type B)	10 ΜΩ

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- Input residuance (Type C)         10 MD           • Type E         Yes (56 bit hol, sign           - Input residuance (Type E)         10 MD           • Type J         Yes, (56 bit hol, sign           - Input residuance (Type K)         10 MD           • Type K         Yes, (56 bit hol, sign           - Input residuance (Type K)         10 MD           • Type K         Yes, (56 bit hol, sign           - Input residuance (Type K)         10 MD           • Type K         Yes, (56 bit hol, sign           - Input residuance (Type K)         10 MD           • Type K         Yes, (56 bit hol, sign           - Input residuance (Type K)         10 MD           • Type K         Yes, (56 bit hol, sign           - Input residuance (Type K)         10 MD           • Type T         Yes, (56 bit hol, sign           - Input residuance (Type K)         10 MD           • Type T         Yes, (56 bit hol, sign           - Input residuance (Type K)         10 MD           • Type T         Yes, (56 bit hol, sign           - Input residuance (Type K)         10 MD           - Input residuance (Type K)         10 MD           - Input residuance (Type K)         10 MD           - Input residuance (To 10 O)         <	- Input residence (Type C)         10 M0           - Input residence (Type C)         10 M0           - Type L         Vest 16 bit Ind. sign           - Input residence (Type C)         10 M0           • Type K         Vest 16 bit Ind. sign           - Input residence (Type K)         10 M0           • Type K         Vest 16 bit Ind. sign           - Input residence (Type K)         10 M0           • Type K         Vest 16 bit Ind. sign           - Input residence (Type K)         10 M0           • Type K         Vest 16 bit Ind. sign           - Input residence (Type K)         10 M0           • Type K         Vest 16 bit Ind. sign           - Input residence (Type K)         10 M0           • Type K         Vest 16 bit Ind. sign           - Input residence (Type K)         10 M0           • Type K         Vest 16 bit Ind. sign           - Input residence (Type K)         10 M0           • Type K         Vest 16 bit Ind. sign           - Input residence (Type K)         10 M0           • Type K         Vest 16 bit Ind. sign           - Input residence (Type K)         10 M0           • Info (Go         Vest Standarddinate           - Input residence (F) 100)         10 M0		
<ul> <li>Type E         <ul> <li>Input residuance (Type E)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type E)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type E)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type E)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type E)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type E)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type R)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type R)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type R)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type R)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type R)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type R)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type R)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type R)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type R)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (Type R)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (NI 000)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (NI 000)</li> <li>Yos, 16 bit Incl. sign</li> <li>Input residuance (NI 1000)</li> <li>Yos, Standardicelimate</li> <li>Input residuance (NI 1000)</li> <li>Yos</li> <li>Yos Standardicelimate</li> <li>Input residuance (NI 1000)</li> <li>Yos</li> <li>Yos</li> <li>Yos</li> <li>Yos Standardicelimate</li></ul></li></ul>	• YesYes10 M A- input resistance (type K)10 M A• hype JYes• hype JYes	• Type C	Yes; 16 bit incl. sign
- Input residence (type E)         10 M0           • Type J         Yes: 16 bit nd. sign           - Input residence (type K)         10 M0           • Type K         Yes: 16 bit nd. sign           - Input residence (type K)         10 M0           • Type K         Yes: 16 bit nd. sign           - Input residence (type K)         10 M0           • Type R         Yes: 16 bit nd. sign           - Input residence (type K)         10 M0           • Type R         Yes: 16 bit nd. sign           - Input residence (type K)         10 M0           • Type R         Yes: 16 bit nd. sign           - Input residence (type K)         10 M0           • Type T         Yes: 16 bit nd. sign           - Input residence (type K)         10 M0           • Type T         Yes: 16 bit nd. sign           - Input residence (type K)         10 M0           • Type T         Yes: 16 bit nd. sign           - Input residence (type K)         10 M0           • Type T         Yes: 16 bit nd. sign           - Input residence (type K)         10 M0           • Type T         Yes: 16 bit nd. sign           - Input residence (type K)         Yes: 16 bit nd. sign           - Input resistance (type K)         Yes: 16 bit nd. si	- Input resistance (Type E)         10 MI           • Type J         Yes: 16 bit Incl. sign           - Input resistance (Type K)         10 MI           • Type L         Yes: 16 bit Incl. sign           - Input resistance (Type K)         10 MI           • Type L         Yes: 16 bit Incl. sign           - Input resistance (Type K)         10 MI           • Type R         Yes: 16 bit Incl. sign           - Input resistance (Type K)         10 MI           • Type R         Yes: 16 bit Incl. sign           - Input resistance (Type K)         10 MI           • Type R         Yes: 16 bit Incl. sign           - Input resistance (Type K)         10 MI           • Type R         Yes: 16 bit Incl. sign           - Input resistance (Type K)         10 MI           • Type I         Yes: 16 bit Incl. sign           - Input resistance (Type K)         10 MI           • Type I         Yes: 16 bit Incl. sign           - Input resistance (Type K)         10 MI           • Type I         Yes: Standardicinate           - Input resistance (FYP K)         10 MI           • Input resistance (FYP K)         10 MI           • Input resistance (FYP K)         10 MI           • Input resistance (FYP K)         10	— Input resistance (Type C)	10 MΩ
<ul> <li>Type J</li> <li>Yes (3 bit hol. sign</li> <li>Input resistance (type J)</li> <li>10 MQ</li> <li>Yes (5 bit hol. sign</li> <li>Input resistance (type K)</li> <li>Yes (5 bit hol. sign</li> <li>Input resistance (Type K)</li> <li>Yes (5 bit hol. sign</li> <li>Input resistance (Type N)</li> <li>Yop R</li> <li>Input resistance (Type R)</li> <li>10 MQ</li> <li>Type I</li> <li>Input resistance (Type T)</li> <li>Yes (16 bit hol. sign</li> <li>Input resistance (Type T)</li> <li>Yes (16 bit hol. sign</li> <li>Input resistance (Type T)</li> <li>Yes (16 bit hol. sign</li> <li>Input resistance (Type T)</li> <li>Yes (16 bit hol. sign</li> <li>Input resistance (Wi 100)</li> <li>Yes (16 bit hol. sign</li> <li>Input resistance (Wi 100)</li> <li>Yes (16 bit hol. sign</li> <li>Input resistance (Wi 100)</li> <li>Yes (Sandardkimate</li> <li>Input resistance (Wi 100)</li> <li>Yes (Sandardkimate<td><ul> <li>- input resistance (type J)</li> <li>- input resistance (type R)</li> <li>- input resistance (type S)</li> <li>- input resistance (type</li></ul></td><td>• Type E</td><td>Yes; 16 bit incl. sign</td></li></ul>	<ul> <li>- input resistance (type J)</li> <li>- input resistance (type R)</li> <li>- input resistance (type S)</li> <li>- input resistance (type</li></ul>	• Type E	Yes; 16 bit incl. sign
- input resistance (type k)         10 MQ           - input resistance (type k)         10 MQ           • type k         10 MQ           • input resistance (type k)         10 MQ           • input resistance (to 150 ohms)	- Input resistance (type J)         10 M2           • Type K         Ves: 16 bit Ind. sign           - Input resistance (type K)         10 M2           • Type K         Ves: 16 bit Ind. sign           - Input resistance (type K)         10 M2           • Type K         Ves: 16 bit Ind. sign           - Input resistance (type K)         10 M2           • Input resistance (type R)         10 M2           • Input resistance (type R) <td>— Input resistance (Type E)</td> <td>10 ΜΩ</td>	— Input resistance (Type E)	10 ΜΩ
• Type K     Yes: 48 bit had, sign       - Input resistance (Type K)     Yes:       • Input resistance (Type K)     10 MQ       • Type K     Yes:       • Input resistance (Type K)     10 MQ       • Type K     Yes:       • Input resistance (Type K)     Yes:       • Input resistance (N 100)     10 MQ       • Input resistance	<ul> <li>- Input resistance (Type K)</li> <li>- Input resistance (M) 1000</li> <li>- Ves; Standardclimate</li> <li>- Input resistance (P1 100)</li> <li>- Input resistance (P1 100)<!--</td--><td>• Туре Ј</td><td>Yes; 16 bit incl. sign</td></li></ul>	• Туре Ј	Yes; 16 bit incl. sign
	- Input resistance (Type I.)         10 M0           • Type I.         Yes, 16 bit Incl. sign           - Input resistance (Type I.)         10 M0           • Type R.         Yes, 16 bit Incl. sign           - Input resistance (Type R.)         10 M0           • Type R.         Yes, 16 bit Incl. sign           - Input resistance (Type R.)         10 M0           • Type T.         Yes, 16 bit Incl. sign           - Input resistance (Type T)         10 M0           • Type T         Yes, 16 bit Incl. sign           - Input resistance (Type T)         10 M0           • Type T         Yes, 16 bit Incl. sign           - Input resistance (Type T)         10 M0           • Type T         Yes, Standard/colimate           - Input resistance (M 100)         10 M0           • Input resistance (M 100)         10 M0           - Input resistance (M 100)	— Input resistance (type J)	10 ΜΩ
• Type L     Yes; 16 bit incl. sign       - Input resistance (Type L)     10 MD       • Type N     Yes; 16 bit incl. sign       - Input resistance (Type R)     10 MD       • Type R     Yes; 16 bit incl. sign       - Input resistance (Type R)     10 MD       • Type T     Yes; 16 bit incl. sign       - Input resistance (Type R)     10 MD       • Type T     Yes; 16 bit incl. sign       - Input resistance (Type T)     10 MD       • Type U     Yes; 16 bit incl. sign       - Input resistance (Type U)     10 MD       • Type U     Yes; 16 bit incl. sign       - Input resistance (Type U)     10 MD       • Input resistance (Ni 100)     10 MD       • Input resistance (Ni 100)     10 MD       • Ni 100     Yes; Standard/climate       - Input resistance (Ni 100)     10 MD       • Pit 100     Yes; Standard/climate       - Input resistance (Ni 100)     10 MD       • Pit 100     Yes; Standard/climate       - Input resistance (I 10 150 ohms)     10 MD       • Pit 100 resistance (I 10 150 ohms)     10 MD       • Input resistance (I 10 150 ohms)     10 MD       • Input resistance (I 10 150 ohms)     10 MD       • Input resistance (I 10 150 ohms)     10 MD       • Input resistance (I 10 150 ohms)     10 MD   <	<ul> <li>Type L</li> <li>Frype L</li> <li>Input resistance (Type L)</li> <li>Input resistance (Type L)</li> <li>Type N</li> <li>Frype R</li> <li>Fryp</li></ul>	• Туре К	Yes; 16 bit incl. sign
- Input resistance (Type L)         10 M0           • Type N         Yes; 16 bit Incl. sign           - Input resistance (Type R)         10 M0           • Type R         Yes; 16 bit Incl. sign           - Input resistance (Type R)         10 M0           • Type S         Yes; 16 bit Incl. sign           - Input resistance (Type R)         10 M0           • Type T         Yes; 16 bit Incl. sign           - Input resistance (Type D)         10 M0           • Type U         Yes; 16 bit Incl. sign           - Input resistance (Type D)         10 M0           • Type U         Yes; 16 bit Incl. sign           - Input resistance (Type D)         10 M0           • Ni 100         Yes; Standard/climate           - Input resistance (Ni 100)         10 M0           • Ni 100         Yes; Standard/climate           - Input resistance (PI 100)         10 M0           • PI 100         Yes; Standard/climate           - Input resistance (PI 100)         10 M0           • No 100 S0 Onls         Yes           • Input resistance (PI 100)         10 M0           • Oo 10 S0 Onls         Yes           - Input resistance (DI 50 othms)         Yes           - Input resistance (I 100)         10 M0	- input resistance (Type L)         10 M2           • Type N         10 M2           • input resistance (Type N)         10 M2           • input resistance (Type N)         10 M2           • input resistance (Type R)         10 M2           • input resistance (Type U)         Yes; 16 bit incl. sign           • input resistance (Type U)         Yes; 16 bit incl. sign           • input resistance (Ni 100)         10 M2           • input resistance (Pt 100)         Yes; Standardclimate           • input resistance (Pt 100)         Yes; Standardclimate           • input resistance (Pt 100)         Yes	— Input resistance (Type K)	10 ΜΩ
• Type N     Yes: 16 bit Incl. sign       - Input resistance (Type N)     10 M0       • Type R     Yes: 16 bit Incl. sign       - Input resistance (Type R)     10 M0       • Type S     Yes: 16 bit Incl. sign       - Input resistance (Type S)     10 M0       • Type V     Yes: 16 bit Incl. sign       - Input resistance (Type T)     10 M0       • Type V     Yes: 16 bit Incl. sign       - Input resistance (Type T)     10 M0       • N 100     Yes: Standardclimate       - Input resistance (Ni 100)     10 M0       • N 100     Yes: Standardclimate       - Input resistance (Ni 100)     10 M0       • N 100     Yes: Standardclimate       - Input resistance (Ni 100)     10 M0       • Pi 100     Yes: Standardclimate       - Input resistance (Ni 100)     10 M0       • Pi 100     Yes: Standardclimate       - Input resistance (Ni 100)     10 M0       • Pi 100     Yes: Standardclimate       - Input resistance (Ni 100)     10 M0       • Pi 100     Yes       - Input resistance (Ni 100)     10 M0       • Pi 100     Yes       - Input resistance (Ni 100)     10 M0       • Pi 100     Yes       - Input resistance (Ye 100)     10 M0       • Rindet walues, resistance<	• Type N         Yes; 16 bit Incl. sign           - Input resistance (Type N)         10 MQ           • Type R         Yes; 16 bit Incl. sign           - Input resistance (Type R)         10 MQ           • Type S         Yes; 16 bit Incl. sign           - Input resistance (Type R)         10 MQ           • Type J         Yes; 16 bit Incl. sign           - Input resistance (Type T)         10 MQ           • Type U         Yes; 16 bit Incl. sign           - Input resistance (Type U)         10 MQ           • Type U         Yes; 16 bit Incl. sign           - Input resistance (Type U)         10 MQ           • Input resistance (N) 100)         10 MQ           • Input resistance (N) 100)         10 MQ           • Input resistance (PI 100)         10 MQ           • Input resistance (O to 150 ohms)         10 MQ           • Input resistance (O to 30 ohms)         Yes           - Input re	• Type L	Yes; 16 bit incl. sign
- input resistance (Type N)         10 MQ           • Type R         Yes; 16 bit Incl. sign           - input resistance (Type R)         10 MQ           • Type S         Yes; 16 bit Incl. sign           - input resistance (Type T)         10 MQ           • Type T         Yes; 16 bit Incl. sign           - input resistance (Type D)         Yes; 16 bit Incl. sign           - input resistance (Type D)         Yes; 16 bit Incl. sign           - input resistance (Type D)         Yes; 16 bit Incl. sign           - input resistance (Type D)         Yes; 16 bit Incl. sign           - input resistance (Ni 100)         10 MQ           • Ni 100         Yes; Standardclimate           - input resistance (Ni 100)         10 MQ           • Ni 100         Yes; Standardclimate           - input resistance (Ni 100)         10 MQ           • Ni 100         Yes; Standardclimate           - input resistance (Ni 100)         10 MQ           • No 100         Yes; Standardclimate           - input resistance (Ni 100)         10 MQ           • No 100 hns         Yes           - input resistance (Ni 100 ohns)         Yes           - input resistance (Ni 100 ohns)         Yes           - input resistance (Ni 100 ohns)         Yes		— Input resistance (Type L)	10 ΜΩ
• Type R         Yes; 16 bit incl. sign           — Input resistance (Type R)         10 MQ           • Type S         Yes; 16 bit incl. sign           — Input resistance (Type S)         10 MQ           • Type T         Yes; 16 bit incl. sign           — Input resistance (Type T)         10 MQ           • Type T         Yes; 16 bit incl. sign           — Input resistance (Type U)         Yes; 16 bit incl. sign           — Input resistance (Type U)         Yes; 16 bit incl. sign           — Input resistance (Type U)         Yes; 55 andard/climate           — Input resistance (N1 000)         Yes; 55 andard/climate           — Input resistance (N1 000)         Yes; 55 andard/climate           — Input resistance (N1 000)         Yes; 55 andard/climate           — Input resistance (P1 00)         Yes; Standard/climate           — Input resistance (P1 00)         Yes; Standard/climate           — Input resistance (Yer 00)         Yes           — Input resistance (Yer 00)         Yes           • Temperature sconce (Yer 00)         Yes           • Input resistance (Yer 00)         Yes	· Type R         · Input resistance (Type R)         Yes: 16 bit Incl. sign           - input resistance (Type S)         10 MQ           • Type T         Yes: 16 bit Incl. sign           - input resistance (Type T)         Yes: 16 bit Incl. sign           - input resistance (Type T)         Yes: 16 bit Incl. sign           - input resistance (Type T)         Yes: 16 bit Incl. sign           - input resistance (Type T)         Yes: 16 bit Incl. sign           - input resistance (Type U)         Yes: 16 bit Incl. sign           - input resistance (Type U)         Yes: 16 bit Incl. sign           - input resistance (Type U)         Yes: Standard climate           - input resistance (PI 100)         Yes           Yes 00 ohn6         Yes           - input resistance (D 15 0 ohms)         Yes           - ohman temperature compensation         Yes           - input resistance (D 15 0 ohms)         Yes	• Type N	Yes; 16 bit incl. sign
• Type R         Yes; 16 bit incl. sign           - Input resistance (Type R)         10 MΩ           • Type S         Yes; 16 bit incl. sign           - Input resistance (Type S)         10 MΩ           • Type T         Yes; 16 bit incl. sign           - Input resistance (Type T)         10 MΩ           • Type T         Yes; 16 bit incl. sign           - Input resistance (Type U)         Yes; 16 bit incl. sign           - Input resistance (Type U)         Yes; 16 bit incl. sign           - Input resistance (Type U)         Yes; 16 bit incl. sign           - Input resistance (Type U)         Yes; 16 bit incl. sign           - Input resistance (N) 1000         10 MΩ           • Ni 100         Yes; Standardclimate           - Input resistance (N) 1000         Yes; Standardclimate           - Input resistance (N) 1000         Yes; Standardclimate           - Input resistance (P100)         Yes; Standardclimate           - Input resistance (D to 300 ohms)         10 MΩ           - Input resistance (D to 300 ohms)         10 MΩ           - Input resistance (D to 300 ohms)         10 MΩ           - Input resistance (D to 300 ohms)         10 MΩ           - Input resistance (D to 300 ohms)         10 MΩ           - Input resistance (D to 300 ohms)         Yes	· Type R         Yes: 16 bit Incl. sign           - Input resistance (Type R)         10 MQ           • Type S         Yes: 16 bit Incl. sign           - Input resistance (Type S)         10 MQ           • Type T         Yes: 16 bit Incl. sign           - Input resistance (Type P)         10 MQ           • Type T         Yes: 16 bit Incl. sign           - Input resistance (Type U)         Yes: Yes bit Incl. sign           - Input resistance (Type U)         10 MQ           Input resistance (P) 100)         10 MQ           Input resistance (P) 100)         10 MQ           Input resistance (P1 100)	— Input resistance (Type N)	10 ΜΩ
			Yes; 16 bit incl. sign
• Type S     Yes; 16 bit incl. sign       - Input resistance (Type S)     10 MQ       • Type T     Yes; 16 bit incl. sign       - Input resistance (Type U)     10 MQ       • Type U     Yes; 16 bit incl. sign       - Input resistance (Type U)     10 MQ       Input resistance (Type U)     10 MQ       Input resistance (Type U)     10 MQ       Input resistance (Ni 100)     10 MQ       • Ni 100     Yes; Standard/climate       - Input resistance (Ni 100)     10 MQ       • Ni 100     Yes; Standard/climate       - Input resistance (Ni 100)     10 MQ       • Pit 100     Yes; Standard/climate       - Input resistance (Ni 100)     10 MQ       • Pit 100     Yes; Standard/climate       - Input resistance (Ni 100)     10 MQ       • Pit 100     Yes; Standard/climate       - Input resistance (Ni 100)     10 MQ       • Pit 100     Yes; Standard/climate       - Input resistance (Ni 100)     10 MQ       • Pit 100     Yes; Standard/climate       - Input resistance (Ni 100 ohms)     10 MQ       • Pit 100     Yes       - Input resistance (Ni 100 ohms)     10 MQ       • Ot 0 150 ohms     Yes       - Input resistance (Ni 100 ohms)     10 MQ       • Ot of 50 ohms     Yes <t< td=""><td>• Type S         Yes: 16 bit not. sign           - Input resistance (Type S)         10 MQ           • Type T         Yes: 16 bit not. sign           - Input resistance (Type U)         10 MQ           • Type U         Yes: 16 bit not. sign           - Input resistance (Type U)         10 MQ           Input resistance (Type U)         10 MQ           • Init of the sistance (Type U)         10 MQ           • Input resistance (N1 100)         10 MQ           • Init of the sistance (N1 100)         10 MQ           • Init of the sistance (N1 100)         10 MQ           • Input resistance (</td><td></td><td></td></t<>	• Type S         Yes: 16 bit not. sign           - Input resistance (Type S)         10 MQ           • Type T         Yes: 16 bit not. sign           - Input resistance (Type U)         10 MQ           • Type U         Yes: 16 bit not. sign           - Input resistance (Type U)         10 MQ           Input resistance (Type U)         10 MQ           • Init of the sistance (Type U)         10 MQ           • Input resistance (N1 100)         10 MQ           • Init of the sistance (N1 100)         10 MQ           • Init of the sistance (N1 100)         10 MQ           • Input resistance (		
	- Input resistance (Type S)         10 MQ           • Type T         Yes; 16 bit Incl. sign           - Input resistance (Type U)         Yes; 56 bit Incl. sign           - Input resistance (Type U)         10 MQ           Input resistance (NI 100)         10 MQ           - Input resistance (NI 100)         Yes           - Input resistance (NI 100)         Yes           - Input resi		Yes: 16 bit incl. sign
• Type T     Yes; 16 bit incl. sign       - Input resistance (Type T)     10 MQ       • Ny Type U     Yes; 16 bit incl. sign       - Input resistance (Type U)     10 MQ       Input ranges (rade values), resistance thermometer     • Ni 100       - Input resistance (Ni 100)     10 MQ       • Ni 100     Yes; Standardclimate       - Input resistance (Ni 100)     10 MQ       • Pi 100     Yes; Standardclimate       - Input resistance (Pi 100)     10 MQ       • Pi 100     Yes; Standardclimate       - Input resistance (Pi 100)     10 MQ       • Pi 100     Yes; Standardclimate       - Input resistance (Pi 100)     10 MQ       • Pi 100     Yes; Standardclimate       - Input resistance (Pi 100)     10 MQ       • Pinut resistance (Io 150 ohms)     10 MQ       • Thermocouple (TG)     Temperature compensation       • Inernal temperature compensation     Yes       - add temperature compensation with     Yes       - add reference temperature     Yes       Cable length     30 m       Analog value generation for the inputs     Yes (16 bit       • Analog value generation for the inputs     Yes       • Analog value generation time (resion time	• Type T         Yes; 16 bit not. sign           - Input resistance (Type T)         10 MΩ           • Type U         Yes; 16 bit not. sign           - Input resistance (Type U)         10 MΩ           Input resistance (Type U)         10 MΩ           • Ni 100         Yes; Standard/climate           - Input resistance (Ni 100)         10 MΩ           • Ni 100         Yes; Standard/climate           - Input resistance (Ni 100)         10 MΩ           • Pi 100         Yes; Standard/climate           - Input resistance (Pi 100)         10 MΩ           • Pi 100         Yes; Standard/climate           - Input resistance (Pi 100)         10 MΩ           • Input resistance (Pi 100)         10 MΩ           • Input resistance (Pi 100)         10 MΩ           • Input resistance (Di 50 ohms)         10 MΩ           • Input resistance (Di 50 ohms)         10 MΩ           • Input resistance (Di 50 ohms)         Yes           - Input resistance (D		
	- input resistance (Type T)         10 MΩ           • Type U         Yes; 16 bit incl. sign           - input resistance (Yrpe U)         10 MΩ           Input resistance (Ni 100)         Yes; Standard/climate           - input resistance (Ni 100)         10 MΩ           • Ni 100         Yes; Standard/climate           - input resistance (Ni 100)         10 MΩ           • Ni 100         Yes; Standard/climate           - input resistance (Ni 100)         10 MΩ           • Pit 100         Yes; Standard/climate           - input resistance (Ni 100)         10 MΩ           • Pit 100         Yes; Standard/climate           - input resistance (Ni 100)         10 MΩ           • Pit 100         Yes; Standard/climate           - input resistance (Ni 100)         10 MΩ           Input resistance (Ni 100)         10 MΩ           Input resistance (Ni 100 ohms)         10 MΩ           Interastic (Residual values), residual values), residual values         Yes           - inetrena temperature compensation         Yes <td></td> <td></td>		
• Type U     Yes; 16 bit incl. sign       - Input resistance (Type U)     10 MΩ       Input range (rade values), resistance thermometer     • Ni 100       - Input resistance (Ni 100)     10 MΩ       • Ni 100     Yes; Standard/climate       - Input resistance (Ni 100)     10 MΩ       • Pl 100     Yes; Standard/climate       - Input resistance (Pl 100)     10 MΩ       • Pl 100     Yes; Standard/climate       - Input resistance (Pl 100)     10 MΩ       • Pl 100     Yes; Standard/climate       - Input resistance (Pl 100)     10 MΩ       • Pl 100     Yes; Standard/climate       - Input resistance (Pl 1000)     10 MΩ       • Pl 100     Yes; Standard/climate       - Input resistance (Pl 1000)     10 MΩ       • Input resistance (I to 50 ohms)     10 MΩ       • Temporature (Pl 100 ohms)     10 MΩ       • Temporature (Cl)     Temperature compensation       • Input resistance (I to 50 ohms)     10 MΩ       • Intergrature compensation     Yes       • Intergrature compensation     Yes       • Analog value generature compensation     Yes       • Anatog value generature value	• Type U     Yes; 16 bit incl. sign       — Input resistance (Type U)     10 MQ       • Ni 100     Yes; Standard/climate       — Input resistance (Ni 100)     10 MQ       • Ni 100     Yes; Standard/climate       — Input resistance (Ni 100)     10 MQ       • Pit 100     Yes; Standard/climate       — Input resistance (Pi 100)     10 MQ       • Pit 100     Yes; Standard/climate       — Input resistance (Pi 100)     10 MQ       • Pit 100     Yes; Standard/climate       — Input resistance (Pi 100)     10 MQ       • Pit 100     Yes; Standard/climate       — Input resistance (Pi 100)     10 MQ       • O to 50 ohms     Yes       — Input resistance (Pi 100)     10 MQ       • O to 50 ohms     Yes       — Input resistance (Pi to 300 ohms)     10 MQ       • O to 50 ohms     Yes       — Input resistance (Pi to 300 ohms)     10 MQ       • Temperature compensation     Yes       — Input resistance (Pi to 300 ohms)     10 MQ       • Ota 500 ohms     Yes       — Input resistance (Pi to 200 ohms)     10 MQ       • Temperature compensation     Yes       — Input resistance (Pi to 300 ohms)     10 MQ       • Temperature compensation     Yes       — Additional conversion file Input Standard Yes<		
Input ranges (rated values), resistance thermometer         • Ni 100       Yes; Standard/climate         - Input resistance (Ni 100)       10 MQ         • Ni 100       Yes; Standard/climate         - Input resistance (Ni 100)       10 MQ         • Pt 100       Yes; Standard/climate         - Input resistance (Pt 100)       10 MQ         • Pt 100       Yes; Standard/climate         - Input resistance (Pt 100)       10 MQ         • Pt 100       Yes; Standard/climate         - Input resistance (Pt 100)       10 MQ         Indut ranges (rated values), resistors       Yes         • 0 to 150 ohms       Yes         - Input resistance (0 to 150 ohms)       10 MQ         Thermocouple (TC)       Temperature compensation         Tremperature compensation       Yes         - internal temperature compensation with compensation socket       Yes         - dynamic reference temperature       Yes         - Shielded, max.       30 m         Anatog value generature for the inputs       Integrating         Measurement principle       Integrating         Integration time (ms)       16 bit         • Resolution with overage (bit including sign), max.       16 bit         • Integration time, including integration time (ms)	Input ranges (rated values), resistance thermometer           • Ni 100         Yes; Standard/climate           - Input resistance (Ni 100)         10 MQ           • Ni 1000         Yes; Standard/climate           - Input resistance (Ni 1000)         10 MQ           • Pi 100         Yes; Standard/climate           - Input resistance (Pi 100)         10 MQ           • Pi 100         Yes; Standard/climate           - Input resistance (Pi 100)         10 MQ           • Pi 100         Yes; Standard/climate           - Input resistance (Pi 100)         10 MQ           • Ot of 50 ohms         Yes           - Input resistance (Di 0 150 ohms)         10 MQ           • Temperature compensation         Yes           - Input resistance (Di 0 300 ohms)         10 MQ           Temperature compensation         Yes           - internal temperature compensation         Yes           - dynamic reference temperature value         Yes           - dynamic reference temperature value         Yes           - Shielded, max.         30 m           Analog value generation of the inputs         Messurement principle           Integration time, narrange (Di Including sign), max.         16 bit           • Integration time, narrange (Di Including sign), max.		-
• N1100     Yes; Standard/climate       Input resistance (Ni 100)     10 MQ       • Ni 1000     Yes; Standard/climate       Input resistance (Ni 1000)     10 MQ       • P1 100     Yes; Standard/climate       Input resistance (P1 100)     10 MQ       • P1 100     Yes; Standard/climate       Input resistance (P1 100)     10 MQ       • Pt 100     Yes; Standard/climate       Input resistance (P1 100)     10 MQ       Input resistance (P1 100)     10 MQ       • O to 150 ohms     Yes       Input resistance (0 to 150 ohms)     10 MQ       • O to 300 ohms     Yes       Input resistance (0 to 300 ohms)     10 MQ       • Temperature compensation     Yes       internal temperature compensation     Yes       evanal temperature compensation     Yes       evanal temperature compensation with compensation socket     Yes       dynamic reference temperature     Yes       Standard/climate     Yes       Standard/climate     Yes       Internal temperature compensation with compensation socket     Yes       evanal temperature compensation     Yes       dynamic reference temperature     Yes       fiscle reference temperature     Yes       fiscle reference temperature	• Ni 100       Yes; Standard/climate         - Input resistance (Ni 100)       10 MΩ         • Ni 100       Yes; Standard/climate         - Input resistance (Ni 1000)       10 MΩ         • Pi 100       Yes; Standard/climate         - Input resistance (Pi 100)       10 MΩ         • Pi 100       Yes; Standard/climate         - Input resistance (Pi 100)       10 MΩ         • Pit 100       Yes; Standard/climate         - Input resistance (Pi 100)       10 MΩ         • Poto 150 ohms       Yes         - Input resistance (D to 150 ohms)       10 MΩ         • O to 30 ohms       Yes         - Input resistance (D to 50 ohms)       10 MΩ         • Themocouple (TO)       Temperature compensation         • parameterizable       Yes         - internal temperature compensation with compensation with compensation socket       Yes         - external temperature compensation with compensation time/resolution per channel       Yes         Cable length       Yes         - Integrating compensation time/resolution per channel       Yes         Resolution with overrange (bit including sign), max.       16 bit         • Integration time, parameterizable       Yes; channel by channel         • Integration time, parameterizable       Yes; ch		
	- Input resistance (NI 100)10 MQ• NI 1000Yes; Standard/climate- Input resistance (NI 1000)10 MQ• Pt 100Yes; Standard/climate- Input resistance (PI 100)10 MQ• Pt 100Yes; Standard/climate- Input resistance (PI 1000)10 MQInput ranges (rade values), resistorsYes; Standard/climate• 0 to 150 ohmsYes• 0 to 150 ohmsYes• 0 to 150 ohmsYes- Input resistance (I to 300 ohms)10 MQ• 0 to 300 ohmsYes- Input resistance (I to 300 ohms)10 MQ• Temperature compensationYes- Input resistance (I to 300 ohms)Yes- Internal temperature compensation with compensation socketYes- Internal temperature compensation with compensation socketYes- Internal temperature compensation with compensation for the inputsYesCable length30 mIntegration time, parameterizableYes• shelded, max.30 mAnalog value generation for the inputs16 bit• Resolution with overrange (bit including sign), max.16 bit• Integration time, parameterizableYes; channel by channel• Integration time, parameterizableYes; thang/e time•		Yes: Standard/climate
• Ni 1000       Yes; Standard/climate         - Input resistance (Ni 1000)       10 MΩ         • Pt 100       Yes; Standard/climate         - Input resistance (Pt 100)       10 MΩ         • Pt 100       Yes; Standard/climate         - Input resistance (Pt 1000)       10 MΩ         Input resistance (Pt 1000)       10 MΩ         Input resistance (Pt 1000)       10 MΩ         Input resistance (0 to 150 ohms)       10 MΩ         • 0 to 150 ohms       Yes         - Input resistance (0 to 300 ohms)       10 MΩ         Thermocouple (TC)       Temperature compensation         Temperature compensation       Yes         - internal temperature compensation with compensation socket       Yes         - dynamic reference temperature value       Yes         - fixed reference temperature       Yes         Cable length       shilded, max.         Analog value generation functresolution per channel       Integrating         Integration mine, parameterizable       Yes; channel by channel         • Integration time, parameterizable       Yes; channel by channel         • hiedgration fine, parameterizable       Yes; channel by channel         • hiedgration time, parameterizable       Yes; channel by channel         • integration time, parameteri	• Ni 1000     Yes; Standard/climate       - Input resistance (Ni 1000)     10 MQ       • Pi 100     Yes; Standard/climate       - Input resistance (Pt 100)     10 MQ       • Pi 100     Yes; Standard/climate       - Input resistance (Pt 100)     10 MQ       Input ranges (rated values), resistors     Yes       • 0 to 150 ohms     Yes       - Input resistance (0 to 150 ohms)     10 MQ       • O to 300 ohms     Yes       - Input resistance (0 to 150 ohms)     10 MQ       • Tempocalpe (To)     Temperature compensation       - parameterizable     Yes       - input resistance (ot not 150 ohms)     Yes       - input resistance (ot not 150 ohms)     10 MQ       Tempocalpe (To)     Temperature compensation       - external temperature compensation     Yes       - external temperature compensation     Yes       - dynamic reference temperature value     Yes       - dynamic reference temperature value     Yes       - dynamic reference temperature value     Yes       - Resolution with overrange (Dit Including sign), max.     16 bit       Integration time, parameterizable     Yes (channel by channel       • Integration time, parameterizable     Yes (channel by channel       • Integration time (resolution per channel     16 7/20 /60       • Basic co		
• Pt 100       Yes; Standard/climate         — Input resistance (Pt 100)       10 MΩ         • Pt 100       Yes; Standard/climate         — Input resistance (Pt 1000)       10 MΩ         Input ranges (rated values), resistors       Yes; Standard/climate         • 10 150 ohms       Yes         — Input resistance (0 to 150 ohms)       10 MΩ         • 0 to 300 ohms       Yes         — Input resistance (0 to 300 ohms)       10 MΩ         Thermocouple (TC)       Tompercature compensation         Parameterizable       Yes         — Internal temperature compensation socket       Yes         — dynamic reference temperature value       Yes         — dynamic reference temperature value       Yes         — dynamic reference temperature value       Yes         — shielded, max.       30 m         Analog value generation for the inputs       Integrating         Integration and conversion time/resolution per channel       Yes; channel by channel         • Integration time, parameterizable       Yes; channel by channel         • Integration time, ne, parameterizable       Yes; channel by channel         • Integration time, including integration time (ms)       16 bit         • Integration time, nortange       16 bit         • Resolution wit	• Pt 100       Yes; Standard/climate         Input resistance (Pt 100)       10 MΩ         • Pt 100       Yes; Standard/climate         Input resistance (Pt 100)       10 MΩ         Input resistance (Pt 100)       10 MΩ         Input resistance (Pt 100)       10 MΩ         • 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         Thermocouple (TC)       Temperature compensation         parameterizable       Yes         internal temperature compensation       Yes         external temperature compensation with compensation sockt       Yes         dynamic reference temperature value       Yes         dynamic reference temperature value       Yes         dynamic reference temperature value       Yes         dynamic reference temperature       Yes         Cable length       Integrating         Integration for the inputs       Yes         Resourcement principle       Integrating         Integration time (resolution per channel       Ib Ib It         • Integration time (resolution per channel       Ib Zi forms         • Integration time (resolution pe		
• Pt 1000     Yes; Standard/climate       - Input resistance (Pt 1000)     10 MΩ       Input ranges (rated values), resistors     0 MΩ       • 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       Thermocouple (TC)     Temperature compensation       - parameterizable     Yes       - internal temperature compensation with compensation socket     Yes       - dynamic reference temperature value     Yes       - hielded, max.     30 m       Analog value generation for the inputs     Measurement principle       Integration and conversion time/resolution per channel     16 bit       • Integration time, norange (bit including sign), max.     16 bit       • Integration time, including integration time (ms)     18 / 21 / 61 ms       - additional conversion time for resistance measurement     2 ms       - addition	• Pt 1000       Yes; Standard/climate         — Input resistance (Pt 1000)       10 MΩ         Input ranges (rated values), resistors       Yes         • 10 t 150 ohms       Yes         — Input resistance (0 to 150 ohms)       10 MΩ         • Upt resistance (0 to 300 ohms)       Yes         — Input resistance (0 to 300 ohms)       10 MΩ         • Thermocouple (TC)       Temperature compensation         Yes       — internal temperature compensation with compensation socket         — external temperature compensation with compensation socket       Yes         — dynamic reference temperature       Yes         Cable length       Yes         • hielded, max.       30 m         Analog value generation for the inputs       Measurement principle         Integration and conversion time/resolution per channel       Integrating         Integration with overrange (bit including sign), max.       16 bit         • lintegration time, including integration time (ms)       16.7 / 20 / 60         • additional conversion time for weine-break monitoring       4 ms         - additional conversion time for resistance measurement       2 ms         • measurement finiciple       16.7 / 20 / 60         • integration time (row interference frequency 11 in Hz       Yes         Stroothin		
- Input resistance (Pt 1000)       10 MΩ         Input ranges (rated values), resistors       Ves         - Input resistance (0 to 150 ohms)       10 MΩ         - Input resistance (0 to 150 ohms)       10 MΩ         - Input resistance (0 to 300 ohms)       10 MΩ         - Input resistance (0 to 300 ohms)       10 MΩ         Thermecouple (TC)       Temperature compensation         - parameterizable       Yes         - internal temperature compensation with compensation socket       Yes         - dynamic reference temperature value       Yes         - dynamic reference temperature value       Yes         - fixed reference temperature value       Yes         - shielded, max.       30 m         Analog value generation for the inputs       Integration         Measurement principle       integrating         Integration and conversion time/resolution per channel       Yes; channel by channel         Integration itme (ms)       16 bit         Integration itme (ms)       16.7 / 20 / 60         Basic conversion time for resistance measurement       2 ms         - additional conversion time for resistance measurement       2 ms         - additional conversion time for resistance measurement       2 ms         - Inteference voltage suppression for interference frequeency			
Input ranges (rated values), resistors     Yes       • 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       Thermocouple (TC)     Temperature compensation       - parameterizable     Yes       - internal temperature compensation with compensation socket     Yes       - external temperature compensation with compensation socket     Yes       - dynamic reference temperature value     Yes       - dynamic reference temperature value     Yes       - fixed reference temperature value     Yes       - shielded, max.     30 m       Analog value generation for the inputs     integrating       Integration and conversion time/resolution per channel     integrating       Integration time, parameterizable     Yes; channel by channel       • Integration time, including sign), max.     16 bit       • Integration time, including integration time (ms)     18 / 21 / 61 ms       - additional conversion time for resistance measurement     2 ms       - additional conversion time for resistance measurement     6 / 50 / 16.7       Frequency ff in Hz     50 / 50 / 16.7	Input ranges (rated values), resistors         Yes           • 0 to 150 ohms         Yes           - Input resistance (0 to 150 ohms)         10 MQ           • 0 to 300 ohms         Yes           - Input resistance (0 to 300 ohms)         10 MQ           Thermocouple (TC)         Temperature compensation           - parameterizable         Yes           - internal temperature compensation with compensation socket         Yes           - dynamic reference temperature value         Yes           - dynamic reference temperature value         Yes           - fixed reference temperature         Yes           Cable length         integrating           • shielded, max.         30 m           Analog value generation for the inputs         Integrating           Integration itme, parameterizable         Yes; channel by channel           • Integration time, including integration time (ms)         16 // 20 / 60           • Integration time, including integration time (ms)         18 / 21 / 61 ms           • additional conversion time for wire-break monitoring         4 ms           - additional conversion time for esistance         60 / 50 / 16.7           measurement         Fes           Smoothing of measured values         Yes           • parameterizable         Yes<		
• 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       Thermocouple (TC)     Temperature compensation       - parameterizable     Yes       - internal temperature compensation with compensation socket     Yes       - external temperature compensation with compensation socket     Yes       - dynamic reference temperature value     Yes       - fixed reference temperature     Yes       - shielded, max.     30 m       Analog value generation for the inputs     Measurement principle       Integration time, parameterizable     Yes; channel by channel       Integration time, including sign), max.     16 bit       • Integration time, including integration time (ms)     18 / 21 / 61 ms       - additional conversion time for resistance measurement     2 ms       - additional conversion time for resistance measurement     2 ms       - additional conversion time for resistance measurement     2 ms       - additional conversion time for resistance measurement     2 ms       - additional conversion time for resistance measurement <td>• 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         Thermocouple (TC)         Temperature compensation         parameterizable       Yes         internal temperature compensation       Yes         external temperature compensation with compensation socket       Yes         dynamic reference temperature value       Yes         fixed reference temperature       Yes         - dynamic reference temperature       Yes         - dynamic reference temperature       Yes         - fixed reference temperature       Yes         - dynamic reference temperature       Yes         - adation for the inputs       Measurement principle         Integration time (resol)       16 bit         - lat</td> <td></td> <td>10 10122</td>	• 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         Thermocouple (TC)         Temperature compensation         parameterizable       Yes         internal temperature compensation       Yes         external temperature compensation with compensation socket       Yes         dynamic reference temperature value       Yes         fixed reference temperature       Yes         - dynamic reference temperature       Yes         - dynamic reference temperature       Yes         - fixed reference temperature       Yes         - dynamic reference temperature       Yes         - adation for the inputs       Measurement principle         Integration time (resol)       16 bit         - lat		10 10122
- Input resistance (0 to 150 ohms)       10 MΩ         • 0 to 300 ohms       Yes         - Input resistance (0 to 300 ohms)       10 MΩ         Thermocouple (TC)         Temperature compensation         - parameterizable       Yes         - internal temperature compensation       Yes         - external temperature compensation with compensations socket       Yes         - dynamic reference temperature value       Yes         - fixed reference temperature value       Yes         - fixed reference temperature value       Yes         - fixed reference temperature value       Yes         Cable length       30 m         Analog value generation for the inputs         Measurement principle       integrating         Integration and conversion time/resolution per channel       Yes; channel by channel         Integration time, parameterizable       Yes; channel by channel         Integration time (ms)       16 /21 / 61 ms         - additional conversion time for wire-break monitoring       4 ms         - additional conversion time for wire-break monitoring       4 ms         - additional conversion time for wire-break monitoring       2 ms         - additional conversion time for interference frequency f1 in Hz       60 / 50 / 16.7	- Input resistance (0 to 150 ohms)     10 MΩ       • 0 to 300 ohms     Yes       - Input resistance (0 to 300 ohms)     10 MΩ       Thermocouple (TC)     -       Temperature compensation     Yes       - parameterizable     Yes       - internal temperature compensation with compensations socket     Yes       - dynamic reference temperature value     Yes       - adottion and conversion time/resolution per channel     Integration time (ms)       Integration time, including integration time (ms)     18 / 21 / 61 ms       - additional conversion time for		Vac
• 0 to 300 ohms     Yes       — Input resistance (0 to 300 ohms)     10 MΩ       Thermocouple (TC)     Temperature compensation       — parameterizable     Yes       — internal temperature compensation     Yes       — external temperature compensation with compensation socket     Yes       — dynamic reference temperature value     Yes       — fixed reference temperature     Yes       — fixed reference temperature value     Yes       — fixed reference temperature value     Yes       Measurement principle     integrating       Integration and conversion time/resolution per channel     Integration time, parameterizable       • Resolution with overrange (bit including sign), max.     16 bit       • Integration time, no:     16.7 / 20 / 60       • Basic conversion time for wire-break monitoring     4 ms       — additional conversion time for resistance measurement     2 ms       — additional conversion time for interference     2 ms       measurement     60 / 50 / 16.7       Smoothing of measured values     2 ms	• 0 to 300 ohms       Yes         — Input resistance (0 to 300 ohms)       10 MΩ         Thermacouple (TC)       Temperature compensation         — parameterizable       Yes         — internal temperature compensation       Yes         — external temperature compensation with compensation socket       Yes         — dynamic reference temperature value       Yes         — dynamic reference temperature value       Yes         — fixed reference temperature       Yes         Cable length       30 m         Analog value generation for the inputs       30 m         Measurement principle       integrating         Integration and conversion time/resolution per channel       Yes; channel by channel         • Integration time, parameterizable       Yes; channel by channel         • Integration time, including sign), max.       16 bit         • Integration time, including integration time (ms)       18 / 21 / 61 ms         • additional conversion time for wire-break monitoring       4 ms         — additional conversion time for resistance       2 ms         measurement       60 / 50 / 16.7         frequency f1 in Hz       Yes; 1x cycle time         • parameterizable       Yes; 1x cycle time         • Step: None       Yes; 16x cycle time		
	- Input resistance (0 to 300 ohms)       10 MΩ         Thermocouple (TC)         Temperature compensation       Yes         - internal temperature compensation       Yes         - internal temperature compensation with compensation socket       Yes         - dynamic reference temperature value       Yes         - dynamic reference temperature value       Yes         - dynamic reference temperature value       Yes         Cable length       Yes         • shielded, max.       30 m         Analog value generation for the inputs       Integration and conversion time/resolution per channel         Integration and conversion time/resolution per channel       Integration time, parameterizable         • Resolution with overrange (bit including sign), max.       16 bit         • Integration time, narameterizable       Yes; channel by channel         • Integration time (ms)       16.7 / 20 / 60         • Basic conversion time for wise-break montoring       4ms         - additional conversion time for wise-break montoring       4ms         - additional conversion time for resistance       2 ms         measurement       60 / 50 / 16.7         • parameterizable       Yes; 1x cycle time         • parameterizable       Yes; 1x cycle time         • Step: None       Yes; 16x		
Thermocouple (TC)         Temperature compensation        parameterizable       Yes        internal temperature compensation       Yes        external temperature compensation with compensations socket       Yes	Thermocouple (TC)         Temperature compensation         - parameterizable       Yes         - internal temperature compensation       Yes         - external temperature compensation with compensations socket       Yes         - dynamic reference temperature value       Yes         - fixed reference temperature value       Yes         - fixed reference temperature       Yes         Cable length       30 m         Analog value generation for the inputs       Measurement principle         Integration and conversion time/resolution per channel       Integrating         Integration and conversion time/resolution per channel       16 bit         • Resolution with overrange (bit including sign), max.       16 bit         • Integration time, parameterizable       Yes; channel by channel         • Integration time, including integration time (ms)       16.7 / 20 / 60         • Basic conversion time for wire-break monitoring       4 ms         - additional conversion time for wire-break monitoring       4 ms         - additional conversion time for existance measurement       60 / 50 / 16.7         • Interference voltage suppression for interference frequency f1 in Hz       Yes         Smoothing of measured values       Yes; 1x cycle time         • Step: None       Yes; 1x cycle time		
Temperature compensation	Temperature compensation       Yes         - parameterizable       Yes         - internal temperature compensation       Yes         - external temperature compensation with compensations socket       Yes         - dynamic reference temperature value       Yes         - fixed reference temperature       Yes         Cable length       Yes         shielded, max.       30 m         Analog value generation for the inputs       Measurement principle         Integration and conversion time/resolution per channel       Integrating         Integration time, including sign), max.       16 bit         • Integration time, including integration time (ms)       16.7 / 20 / 60         • Basic conversion time for wire-break monitoring       4 ms         - additional conversion time for resistance measurement       2 ms         - additional conversion time for resistance frequency f1 in Hz       2 ms         Smoothing of measured values       Yes; tax cycle time         • Step: None       Yes; tax cycle time         • Step: Nomic       Yes; tax cycle time         • Step: Netium       Yes; tax cycle time		
parameterizableYes internal temperature compensationYes external temperature compensation with compensations socketYes dynamic reference temperature valueYes fixed reference temperature valueYes fixed reference temperatureYesCable length30 m shielded, max.30 mAnalog value generation for the inputsIntegratingMeasurement principleintegratingIntegration and conversion time/resolution per channel16 bit• Resolution with overrange (bit including sign), max.16 bit• Integration time, parameterizableYes; channel by channel• Integration time, parameterizableYes; channel by channel• Integration time, including integration time (ms)18 / 21 / 61 ms additional conversion time for wire-break monitoring additional conversion time for resistance measurement2 ms additional conversion time for interference 			
- internal temperature compensation       Yes         - external temperature compensation with compensations socket       Yes         - dynamic reference temperature value       Yes         - fixed reference temperature value       Yes         - fixed reference temperature       Yes         Cable length       30 m         Analog value generation for the inputs       Measurement principle         Measurement principle       integrating         Integration and conversion time/resolution per channel       Yes; channel by channel         • Integration time, parameterizable       Yes; channel by channel         • Integration time, parameterizable       Yes; channel by channel         • Integration time (ms)       16.7 / 20 / 60         • Basic conversion time for wire-break monitoring       4 ms         - additional conversion time for resistance measurement       2 ms         • Inteference voltage suppression for interference frequency f1 in Hz       60 / 50 / 16.7	- internal temperature compensationYes- external temperature compensation with compensations socketYes- dynamic reference temperature valueYes- fixed reference temperature valueYes- fixed reference temperature valueYesCable lengthYes- shielded, max.30 mAnalog value generation for the inputsintegratingMeasurement principleintegratingIntegration and conversion time/resolution per channel16 bit• Integration and conversion time/resolution per channelYes; channel by channel• Integration time, parameterizableYes; channel by channel• Integration time (ms)16.7 / 20 / 60• Basic conversion time, including integration time (ms)18 / 21 / 61 ms- additional conversion time for wire-break monitoring - additional conversion time for resistance measurement2 ms• Interference voltage suppression for interference frequency f1 in Hz60 / 50 / 16.7Smoothing of measured valuesYes• Step: None • Step: None • Step: Iow • Step: IowYes; 1x cycle time Yes; 1x cycle time Yes; 1x cycle time Yes; 1x cycle time• Step: Iow • Step: Iow • Step: MediumYes; 16x cycle time		Vac
external temperature compensation with compensations socketYes dynamic reference temperature value fixed reference temperatureYes fixed reference temperatureYesCable lengthYes• shielded, max.30 mAnalog value generation for the inputsintegratingMeasurement principleintegratingIntegration and conversion time/resolution per channel16 bit• Resolution with overrange (bit including sign), max.16 bit• Integration time, parameterizable • Integration time (ms)16.7 / 20 / 60• Basic conversion time for wire-break monitoring - additional conversion time for vire-break monitoring - additional conversion time for resistance measurement2 ms• Interference voltage suppression for interference frequency f1 in Hz60 / 50 / 16.7Smoothing of measured valuesIntegration dine conversion for interference frequency f1 in Hz	- external temperature compensation with compensations socketYes- dynamic reference temperature valueYes- fixed reference temperatureYesCable lengthshielded, max.• shielded, max.30 mAnalog value generation for the inputsintegratingMeasurement principleintegratingIntegration and conversion time/resolution per channel16 bit• Resolution with overrange (bit including sign), max.16 bit• Integration time, parameterizableYes; channel by channel• Integration time (ms)16.7 / 20 / 60• Basic conversion time for wire-break monitoring4 ms- additional conversion time for resistance measurement2 ms• Interference voltage suppression for interference frequency f1 in Hz60 / 50 / 16.7• Step: None • Step: NoneYes; 1x cycle time• Step: low • Step: lowYes; 16x cycle time• Step: MediumYes; 16x cycle time		
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Analog value generation for the inputs         Measurement principle       integrating         Integration and conversion time/resolution per channel       integrating         • Resolution with overrange (bit including sign), max.       16 bit         • Integration time, parameterizable       Yes; channel by channel         • Integration time (ms)       16.7 / 20 / 60         • Basic conversion time, including integration time (ms)       18 / 21 / 61 ms         - additional conversion time for wire-break monitoring       4 ms         - additional conversion time for resistance measurement       2 ms         • Interference voltage suppression for interference frequency f1 in Hz       60 / 50 / 16.7	Analog value generation for the inputs         Measurement principle       integrating         Integration and conversion time/resolution per channel       •         Resolution with overrange (bit including sign), max.       16 bit         • Integration time, parameterizable       Yes; channel by channel         • Integration time, including integration time (ms)       16.7 / 20 / 60         • Basic conversion time, including integration time (ms)       18 / 21 / 61 ms         - additional conversion time for wire-break monitoring       4 ms         - additional conversion time for resistance measurement       2 ms         • Interference voltage suppression for interference frequency f1 in Hz       60 / 50 / 16.7         Smoothing of measured values       Yes; 1x cycle time         • Step: None       Yes; 1x cycle time         • Step: low       Yes; 16x cycle time		30 m
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Integration and conversion time/resolution per channel         • Resolution with overrange (bit including sign), max.         • Integration time, parameterizable         • Integration time, parameterizable         • Integration time (ms)         • Basic conversion time, including integration time (ms)         • Basic conversion time, including integration time (ms)         • additional conversion time for wire-break monitoring         • additional conversion time for resistance measurement         • Interference voltage suppression for interference frequency f1 in Hz         Smoothing of measured values	Integration and conversion time/resolution per channel <ul> <li>Resolution with overrange (bit including sign), max.</li> <li>Integration time, parameterizable</li> <li>Yes; channel by channel</li> </ul> <ul> <li>Integration time, parameterizable</li> <li>Yes; channel by channel</li> <li>Integration time (ms)</li> <li>Basic conversion time, including integration time (ms)</li> <li>B/21/61 ms</li> <li>- additional conversion time for wire-break monitoring</li> <li>- additional conversion time for resistance measurement</li> <li>Interference voltage suppression for interference frequency f1 in Hz</li> </ul> 2 ms           Smoothing of measured values         Yes; 1x cycle time <ul> <li>Step: None</li> <li>Step: low</li> <li>Step: Medium</li> <li>Yes; 16x cycle time</li> </ul>		integrating
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frequency f1 in Hz Smoothing of measured values	frequency f1 in Hz     Yes       Smoothing of measured values     Yes       • parameterizable     Yes; 1x cycle time       • Step: None     Yes; 4x cycle time       • Step: low     Yes; 4x cycle time       • Step: Medium     Yes; 16x cycle time		
	• parameterizableYes• Step: NoneYes; 1x cycle time• Step: lowYes; 4x cycle time• Step: MediumYes; 16x cycle time		60 / 50 / 16.7
parameterizable     Yes	• Step: NoneYes; 1x cycle time• Step: lowYes; 4x cycle time• Step: MediumYes; 16x cycle time	Smoothing of measured values	
	• Step: low     Yes; 4x cycle time       • Step: Medium     Yes; 16x cycle time	parameterizable	Yes
Step: None Yes; 1x cycle time	Step: Medium     Yes; 16x cycle time	Step: None	Yes; 1x cycle time
Step: low Yes; 4x cycle time		Step: low	Yes; 4x cycle time
Step: Medium Yes; 16x cycle time	Stan: High     Vac: 22x avala time	Step: Medium	Yes; 16x cycle time
	• Step, high tes, SZX Oycie line	Step: High	Yes; 32x cycle time

Encoder	
Connection of signal encoders	
<ul> <li>for resistance measurement with two-wire connection</li> </ul>	Yes
<ul> <li>for resistance measurement with three-wire connection</li> </ul>	Yes
<ul> <li>for resistance measurement with four-wire connection</li> </ul>	Yes
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.025 %
Temperature error (relative to input range), (+/-)	0.01 %/K
Crosstalk between the inputs, max.	-70 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.01 %; 0.02% for Pt1000
Temperature error of internal compensation	±4 °C
Operational error limit in overall temperature range	
<ul> <li>Voltage, relative to input range, (+/-)</li> </ul>	0.35 %
<ul> <li>Resistance, relative to input range, (+/-)</li> </ul>	0.25 %
<ul> <li>Resistance thermometer, relative to input range, (+/-)</li> </ul>	0.25 %
<ul> <li>Thermocouple, relative to input range, (+/-)</li> </ul>	TC type E, J, K, N, C, U, L: 0.35 %; TC type R, S, T: 0.4 %; TC type B: 0.45 %
Basic error limit (operational limit at 25 °C)	
• Voltage, relative to input range, (+/-)	0.25 %
• Resistance, relative to input range, (+/-)	0.15 %
• Resistance thermometer, relative to input range, (+/-)	0.15 %
• Thermocouple, relative to input range, (+/-)	0.25 %
Interference voltage suppression for $f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage suppression for f = n x (f1 + -0.5 \%), f1 = interference voltage superssion for f = n x (f1 + -0.5 \%), f1 = interference voltage superssion for f = n x (f1 + -0.5 \%), f1 = interference voltage superssion for f = n x (f1 + -0.5 \%), f1 = interference voltage superssion $	rference frequency
• Series mode interference (peak value of interference < rated value of input range), min.	40 dB
Interrupts/diagnostics/status information	
Alarms	
Diagnostic alarm	Yes; Parameterizable
• Limit value alarm	Yes; Parameterizable
Diagnoses	
• Wire-break	Yes; Not for ±80 mV
Overflow/underflow	Yes
Diagnostics indication LED	
<ul> <li>Channel status display</li> </ul>	Yes; green LED
<ul> <li>for module diagnostics</li> </ul>	Yes; green/red LED
Potential separation	
between the load voltages	Yes
Potential separation channels	
<ul> <li>between the channels</li> </ul>	No
<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>	No
Isolation	
Isolation tested with	707 V DC (type test)
Degree and class of protection	
IP degree of protection	IP65/67
Standards, approvals, certificates	
Suitable for safety-related tripping of standard modules	Yes; From FS01
Suitable for applications according to AMS 2750	Yes; Declaration of Conformity, see online support entry 109757262
Suitable for applications according to CQI-9	Yes; Based on AMS 2750 E
Highest safety class achievable for safety-related tripping of standa	
Performance level according to ISO 13849-1	PL d
Category according to ISO 13849-1	Cat. 3
SIL acc. to IEC 62061	SIL 2
Ambient conditions	
Ambient temperature during operation	
min.	-30 °C
• max.	-50°C
connection method	
Design of electrical connection for the inputs and outputs	M12, 5-pole
Design of electrical connection for supply voltage	M8, 4-pole
Besign of clouroal conficution for supply vollage	

M8, 4-pin, shielded	
30 mm	
159 mm	
40 mm	
168 g	
	30 mm 159 mm 40 mm

last modified:

8/16/2023 🖸

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