Data sheet

6ES7531-7KF00-0AB0



SIMATIC S7-1500 analog input module AI 8xU/I/RTD/TC ST, 16 bit resolution, accuracy 0.3%, 8 channels in groups of 8; 4 channels for RTD measurement, common mode voltage 10 V; Diagnostics; Hardware interrupts; Delivery including infeed element, shield bracket and shield terminal: Front connector (screw terminals or push-in) to be ordered separately

General information	
Product type designation	AI 8xU/I/RTD/TC ST
HW functional status	FS04
Firmware version	V2.0.0
 FW update possible 	Yes
Product function	
• I&M data	Yes; I&M0 to I&M3
 Isochronous mode 	No
Prioritized startup	No
 Measuring range scalable 	No
 Scalable measured values 	No
 Adjustment of measuring range 	No
Engineering with	
 STEP 7 TIA Portal configurable/integrated from version 	V12 / V12
 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 	No
• MSI	Yes
CiR - Configuration in RUN	
Reparameterization possible in RUN	Yes
Calibration possible in RUN	Yes
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Input current	
Current consumption, max.	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 available from the backplane bus	0.7 W
Power loss	
Power loss, typ.	2.7 W
Analog inputs	
Number of analog inputs	8

- For ourself recovered	0
For current measurement	8
For voltage measurement	8
For resistance/resistance thermometer measurement	4
For thermocouple measurement	8
permissible input voltage for voltage input (destruction limit), max.	28.8 V
permissible input current for current input (destruction limit), max.	40 mA
Constant measurement current for resistance-type transmitter, typ.	150 Ohm, 300 Ohm, 600 Ohm, Pt100, Pt200, Ni100: 1.25 mA; 6 000 Ohm, Pt500, Pt1000, Ni1000, LG-Ni1000: 0.625 mA; PTC: 0.472 mA
Technical unit for temperature measurement adjustable	Yes; °C/°F/K
Input ranges (rated values), voltages	100, 0.111
• 0 to +5 V	No
• 0 to +10 V	No
• 1 V to 5 V	Yes
— Input resistance (1 V to 5 V)	100 kΩ
• -1 V to +1 V	Yes
— Input resistance (-1 V to +1 V)	10 MΩ
• -10 V to +10 V	Yes
— Input resistance (-10 V to +10 V)	Tes 100 kΩ
- Input resistance (-10 V to +10 V) • -2.5 V to +2.5 V	Yes
	res 10 MΩ
— Input resistance (-2.5 V to +2.5 V)	
• -25 mV to +25 mV	No Voc
• -250 mV to +250 mV	Yes
— Input resistance (-250 mV to +250 mV)	10 MΩ
• -5 V to +5 V	Yes
— Input resistance (-5 V to +5 V)	100 kΩ
• -50 mV to +50 mV	Yes
— Input resistance (-50 mV to +50 mV)	10 ΜΩ
● -500 mV to +500 mV	Yes
— Input resistance (-500 mV to +500 mV)	10 ΜΩ
● -80 mV to +80 mV	Yes
— Input resistance (-80 mV to +80 mV)	10 ΜΩ
Input ranges (rated values), currents	
• 0 to 20 mA	Yes
— Input resistance (0 to 20 mA)	25 Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
• -20 mA to +20 mA	Yes
— Input resistance (-20 mA to +20 mA)	25 Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
• 4 mA to 20 mA	Yes
— Input resistance (4 mA to 20 mA)	25 Ω ; Plus approx. 42 ohms for overvoltage protection by PTC
Input ranges (rated values), thermocouples	
• Type B	Yes
— Input resistance (Type B)	10 ΜΩ
• Type C	No
• Type E	Yes
Input resistance (Type E)	10 ΜΩ
• Type J	Yes
Input resistance (type J)	10 ΜΩ
• Type K	Yes
— Input resistance (Type K)	10 ΜΩ
• Type L	No
• Type N	Yes
— Input resistance (Type N)	10 ΜΩ
Type R	Yes
— Input resistance (Type R)	10 MΩ
Type S Input registance (Type S)	Yes
— Input resistance (Type S)	10 ΜΩ
• Type T	Yes
— Input resistance (Type T)	10 ΜΩ
Type TXK/TXK(L) to GOST	No
Input ranges (rated values), resistance thermometer	
	No

 Cu 10 according to GOST 	No
• Cu 50	No
 Cu 50 according to GOST 	No
• Cu 100	No
 Cu 100 according to GOST 	No
• Ni 10	No
Ni 10 according to GOST	No
• Ni 100	Yes; Standard/climate
— Input resistance (Ni 100)	10 ΜΩ
Ni 100 according to GOST	No
• Ni 1000	Yes; Standard/climate
— Input resistance (Ni 1000)	10 ΜΩ
Ni 1000 according to GOST	No
• LG-Ni 1000	Yes; Standard/climate
— Input resistance (LG-Ni 1000)	10 ΜΩ
• Ni 120	No
Ni 120 according to GOST	No
Ni 200 according to GOST	No
• Ni 500	No
Ni 500 according to GOST	No
• Pt 10	No
Pt 10 Pt 10 according to GOST	No
• Pt 50	No
Pt 50 according to GOST Pt 400	No Vac: Standard (elimete
• Pt 100	Yes; Standard/climate
— Input resistance (Pt 100)	10 ΜΩ
Pt 100 according to GOST	No
• Pt 1000	Yes; Standard/climate
— Input resistance (Pt 1000)	10 MΩ
Pt 1000 according to GOST	No
• Pt 200	Yes; Standard/climate
— Input resistance (Pt 200)	10 ΜΩ
 Pt 200 according to GOST 	No
• Pt 500	Yes; Standard/climate
— Input resistance (Pt 500)	10 ΜΩ
Pt 500 according to GOST	No
Input ranges (rated values), resistors	
• 0 to 150 ohms	Yes
— Input resistance (0 to 150 ohms)	10 ΜΩ
• 0 to 300 ohms	Yes
— Input resistance (0 to 300 ohms)	10 ΜΩ
• 0 to 600 ohms	Yes
— Input resistance (0 to 600 ohms)	10 ΜΩ
• 0 to 3000 ohms	No
• 0 to 6000 ohms	Yes
— Input resistance (0 to 6000 ohms)	10 ΜΩ
• PTC	Yes
— Input resistance (PTC)	10 ΜΩ
Thermocouple (TC)	
Temperature compensation	
— parameterizable	Yes
internal temperature compensation	Yes
external temperature compensation via RTD	Yes
Compensation for 0 °C reference point temperature	Yes; fixed value can be set
Reference channel of the module	Yes
Cable length	
• shielded, max.	800 m; for U/I, 200 m for R/RTD, 50 m for TC
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	16 bit
Integration time, parameterizable	Yes
- integration time, parametenzable	100

Residence time (ms) Seaso conversion fine (ms)		
	Integration time (ms)	2,5 / 16,67 / 20 / 100 ms
		9 / 23 / 27 / 107 ms
measurement inferference voltage suppression for interference frequency f in in tz in Time for other calibration (per module) Smoothing of measured values in parameterizable in parameterizable in Sign blone in S	-	
frequency filin Hz * Time for Ordinal calibration (per module) Smoothing of measured values * parameterizable * Size; None		
Smoothing of measured values • parameterizable • place of the		400 / 60 / 50 / 10 Hz
- parametrizable Yes Site; None Yes Site; None Yes Site; Nedium Yes Site; High Yes Sit	Time for offset calibration (per module)	Basic conversion time of the slowest channel
Step: None Step: None Step: Nedum Step: Ne	Smoothing of measured values	
Slap: low Yes Slap: Medium Yes Slap: Mediu	parameterizable	Yes
Sitep: Medium Sign: High Facotor Connection of signal encoders • for outrent measurement as 2-wire fransducer — Burden of 2-wire fransmitter, max. • for current measurement as 4-wire transducer — Surface measurement with two wire connection • for resistance measurement with four-wire connection • for resistance four four trape, (+/) • for t	Step: None	Yes
Step: High Fincedor Connection of signal encoders of or voltage measurement as 2-wire transducer — Burden of 2-wire transmitter, max. of or current measurement as 4-wire transducer of or resistance measurement with wor-wire connection of or resistance measurement with wor-wire connection of or resistance measurement with four-wire connection ves; All measuring ranges except PTC; internal compensation of the cable resistances or resistance of the cable resistances or ves; All measuring ranges except PTC; internal compensation of the cable resistances or r	Step: low	Yes
For college measurement Yes	Step: Medium	Yes
of ro voltage measurement as 2-wire transducer — Burden of 2-wire transmitter, max. 4 of or current measurement as 4-wire transducer 4 of or current measurement as 4-wire transducer 5 of resistance measurement with two-wire connection 6 of resistance measurement with two-wire connection 7 of resistance measurement with four-wire connection 7 of resistance measurement with four-wire connection 7 of resistance measurement with four-wire connection 8 of resistance measurement with four-wire connection 9 of resistance measurement with four-wire connection 1 of resistance measurement with four-wire connection 9 of resistance measurement with four-wire connection 1 of resistance measurement with four-wire connection 2 of Resistance measurement with four-wire connection 3 of Repeat accuracy in steady state at 25 °C (relative to input range, (+/-) 3 of Resistance measurement with four-wire connection 3 of Repeat accuracy in steady state at 25 °C (relative to	Step: High	Yes
• for voltage measurement • for current measurement as 2-wine transducer — Buden of 2-wire transmitter, max. • for current measurement as 4-wine transducer • for resistance measurement with two-wire connection • for resistance measurement with two-wire connection • for resistance measurement with four-wire connection • for resistance measurement • for resistance except PTC Ves; All measuring ranges except PTC Ves; All measuring ranges except PTC Ves; All measuring ranges except PTC Ves; All measuring ranges except PTC Ves; All measuring ranges except PTC Ves; All measuring ranges except PTC Ves; All measuring ranges except PTC Ves; All measuring ranges except PTC Ves; All measuring ranges except PTC Ves; All mea	Encoder	
• for current measurement as 2-wire transducer — Burden of 2-wire transmitter, max. • for current measurement with wo-wire connection • for resistance measurement with wo-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire connection • for resistance for reflective to input range, (+-) • Constalk between the inputs, max. • College, relative to input range, (+-) • Current, relative to input range, (+-) • Resistance thermometer, relative to input range, (+-) • Resistance thermometer, relative to input range, (+-) • Resistance to input range, (+-) • Current, relative to input range, (+-) • Resistance to input range, (+-) • Resistance to input range, (+-) • Resistance thermometer, relative to input range, (+-) • Resistance thermometer, relative to input range, (+-) •	Connection of signal encoders	
- 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 problem to input range, (+-) • Current, resistive to input range, (+-) • Resistance, relative to input range, (+-) • Resistance, relative to input range, (+-) • Voltage, relative to input range, (+-) • Resistance, relative to input range, (+-) • Resistance,	 for voltage measurement 	Yes
• for current measurement as 4-wire transducer • for resistance measurement with two-wire connection • for resistance measurement with four-wire connection • for resistance in public and the form of the cable resistances • Vers, All measuring ranges except PTC • vers, All measurin	 for current measurement as 2-wire transducer 	Yes
• for resistance measurement with two-wire connection • for resistance measurement with tree-wire connection • for resistance measurement with four-wire connection • for resistance measurement with four-wire connection Frorsinceuracies Linearity error (relative to input range), (+/-) Temperature error (relative to input range), (+/-) Temperature error of internal compensation Ropeat accuracy in steady state at 25 °C (relative to input range), (+/-) Temperature error of internal compensation Poperational error limit in overall temperature range • Voltage, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance temmoneter, relative to input range, (+/-) • Voltage, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance termometer, relative to input range, (+/-) • Resistance termometer, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance termometer, relative to input range, (+/-) • Resistance, relative to input ran	 Burden of 2-wire transmitter, max. 	820 Ω
• for resistance measurement with three-wire connection • for resistance measurement with four-wire connection • for resistance measurement with four-wire connection *Yes; All measuring ranges except PTC **Perside of the cable resistance service of the cable resistance measurement with four-wire connection *Yes; All measuring ranges except PTC **Perside of the cable resistance measurement with four-wire connection *Yes; All measuring ranges except PTC **Perside of the cable resistance resistance in put range, (+/-) **Description of the cable resistance in put range, (+/-) **Crosstalk between the inputs, max.** **Repeat accuracy in steady state at 25 °C (relative to input range). **Poltage, relative to input range, (+/-) **Outrent, relative to input range, (+/-) **Pesistance fleative to input range, (+/-) **Pesistance fleative to input range, (+/-) **Premocouple, relative to input range, (+/-	 for current measurement as 4-wire transducer 	Yes
• for resistance measurement with four-wire connection Errors/accuracies Linearity error (relative to input range), (+/-) Crosstalk between the inputs, max. -80 dB Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) Temperature error of internal compensation Operational error limit in overall temperature range • Voltage, relative to input range, (+/-) • Current, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance relative to input range, (+/-) • Resistance relative to input range, (+/-) • Voltage, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Resistance measurement with formulations (-/-) • Resistance measurement with formulations (-/-) • Resistance measurement with formulations (-/-) • Resistance measurement with range, (+/-) • Phoxos standard: ±0.7 K, Phoxo climate: ±0.2 K, Nixox standard: ±0.3 K, Nixox climate: ±0.15 K • Thermocouple, relative to input range, (+/-) • Resistance measurement with range, (-/-) • Series mode interference (-/-) • Series mode interference (-/-) • Series mode interference, min. • Common mode oblage, max. • Common mode interference, min. • Common mode interference, mi	 for resistance measurement with two-wire connection 	
Linearity error (relative to input range), (+/-) Crosstalk between the inputs, max. Repeat accuracy in steady state at 25° C' (relative to input range), (+/-) Temperature error of internal compensation Repeat accuracy in steady state at 25° C' (relative to input range), (+/-) Temperature error of internal compensation \$\frac{45}{200}\$ \$\text{Corsstalk}\$ between the inputs, max. \$\text{Repeat accuracy in steady state at 25° C' (relative to input range), (+/-) \$\text{Temperature error of internal compensation} \text{ \$\frac{45}{200}\$} \$\text{Corrent, relative to input range, (+/-)} \text{ \$\text{0.3 %}\$} \$\text{Voltage, relative to input range, (+/-)} \text{ \$\text{0.3 %}\$} \$\text{Resistance, relative to input range, (+/-)} \text{ \$\text{0.3 %}\$} \$Pboxx standard: \$\text{2.5 K, Nixox	for resistance measurement with three-wire connection	
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), (+/-) Temperature error of internal compensation Departitional error limit in overall temperature range • Voltage, relative to input range, (+/-) • Current, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Thermocouple, relative to input range, (+/-) • Voltage, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Thermocouple, relative to input range, (+/-) • Voltage, relative to input range, (+/-) • Resistance thermometer, relative to input	for resistance measurement with four-wire connection	Yes; All measuring ranges except PTC
Temperature error (relative to input range), (+/-) Crosstalk between the inputs, max. -80 dB Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) Temperature error of internal compensation Operational error limit in overall temperature range • Voltage, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Thermocouple, relative to input range, (+/-) • Voltage, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Resistance ilimit (operational limit at 25 °C) • Voltage, relative to input range, (+/-) • Voltage, relative to input range, (+/-) • Resistance ilimit (operational limit at 25 °C) • Voltage, relative to input range, (+/-) • Voltage, relative to input range, (+/-) • Resistance relative to input range, (+/-) • Resistance relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Notational limit at 25 °C) • Voltage, relative to input range, (+/-) • Notational limit at 25 °C) • Voltage, relative to input range, (+/-) • Resistance relative to input range, (+/-) • Resistance relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Resistance, relative to	Errors/accuracies	
Crosstalk between the inputs, max. Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) Temperature error of internal compensation Operational error limit in overall temperature range • voltage, relative to input range, (+/-) • Current, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Thermocouple, relative to input range, (+/-) • Thermocouple, relative to input range, (+/-) • Voltage, relative to input range, (+/-) • Voltage, relative to input range, (+/-) • Voltage, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Provided in the first of the fi	Linearity error (relative to input range), (+/-)	0.02 %
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	Temperature error (relative to input range), (+/-)	0.005 %/K; With TC type T 0.02 ± % / K
Tange), (+/-) Temperature error of internal compensation	Crosstalk between the inputs, max.	-80 dB
Operational error limit in overall temperature range Otoltage, relative to input range, (+/-) Current, relative to input range, (+/-) Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Type B:> 600 °C±4.6 K, type E:> -200 °C±1.5 K, Nixxx standard: ±0.5 K, Nixxx standar	range), (+/-)	0.02 %
Voltage, relative to input range, (+/-) Current, relative to input range, (+/-) Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Pbxx standard: ±1.5 K, Pbxx climate: ±0.5 K, Nixxx standard: ±0.5 K, Nixxx climate: ±0.3 K Type B:> 600 °C ±4.6 K, type E:> -200 °C ±1.5 K, type J:> -210 °C ±1.9 K, type K:> -200 °C ±2.4 K, type P:> -210 °C ±2.4 K, t	Temperature error of internal compensation	±6 °C
 Current, relative to input range, (+/-) Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Pbox standard: ±1.5 K, Pbox climate: ±0.5 K, Nixox standard: ±0.5 K, Nixox climate: ±0.3 K Thermocouple, relative to input range, (+/-) Type B:>600 °C ±4.6 K, type E:>-200 °C ±1.5 K, type J:>-210 °C ±1.9 K, type R:>-200 °C ±2.4 K, type R:>-200 °C ±2.4 K Voltage, relative to input range, (+/-) Voltage, relative to input range, (+/-) Current, relative to input range, (+/-) Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Thermocouple, relative to input range, (+/-) Pbox standard: ±0.7 K, Pboxx climate: ±0.2 K, Nixxx standard: ±0.3 K, Nixxx climate: ±0.15 K Type B:>600 °C ±1.7 K, type E:>-200 °C ±0.7 K, type J:>-210 °C ±0.8 K, type K:>-200 °C ±1.2 K, type R:>-200 °C ±1.2 K, type R:>-200 °C ±1.9 K,	·	
Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Thermocouple, relative to input range, (+/-) Thermocouple, relative to input range, (+/-) Type B:> 600 °C ±4.6 K, type E:> -200 °C ±2.9 K, type B:> -210 °C ±1.9 K, type K:> -200 °C ±2.4 K, type N:> -200 °C ±2.9 K, type R:> 0 °C ±4.7 K, type S:> 0 °C ±4.6 K, type T:> -200 °C ±2.9 K, type R:> 0 °C ±4.7 K, type S:> 0 °C ±4.6 K, type T:> -200 °C ±2.9 K, type R:> 0 °C ±4.7 K, type S:> 0 °C ±4.6 K, type T:> -200 °C ±2.9 K, type R:> 0 °C ±4.7 K, type S:> 0 °C ±4.6 K, type T:> -200 °C ±2.9 K, type R:> 0 °C ±4.7 K, type S:> 0 °C ±4.6 K, type T:> -200 °C ±2.9 K, type R:> 0 °C ±4.7 K, type S:> 0 °C ±4.6 K, type T:> -200 °C ±2.9 K, type R:> 0.1 % Current, relative to input range, (+/-) Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Type B:> 600 °C ±1.7 K, type E:> -200 °C ±0.7 K, type J:> -210 °C ±0.8 K, type R:> 0 °C ±1.9 K, type R:> 20 °C ±1.2 K, type R:> 200 °C ±1.2 K, type R:> 200 °C ±1.9 K, type R:> 0 °C ±1.9 K, type T:> -200 °C ±1.8 K, type R:> 200 °C ±1.9 K, type R:> 0 °C ±1.9 K, type R:> 0 °C ±1.9 K, type R:> 0 °C ±1.9 K, type R:> 200 °C	 Voltage, relative to input range, (+/-) 	
Resistance thermometer, relative to input range, (+/-) Thermocouple, relative to input range, (+/-) Type B: > 600 °C ±4.6 K, type E: > -200 °C ±2.9 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.6 K, type B: > -200 °C ±2.9 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.6 K, type R: > -200 °C ±2.9 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.6 K, type R: > -200 °C ±2.9 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.6 K, type R: > -200 °C ±2.9 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.6 K, type R: > -200 °C ±2.9 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.6 K, type T: > -200 °C ±2.9 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.6 K, type T: > -200 °C ±2.9 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.7 K, type R: > 0 °C ±4.7 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.8 K, type R: > -200 °C ±2.9 K,		
climate: ±0.3 K • Thermocouple, relative to input range, (+/-) Type B:> 600 °C ±4.6 K, type E:> -200 °C ±1.5 K, type J:> -210 °C ±1.9 K, type K:> -200 °C ±2.9 K, type R:> 0 °C ±4.7 K, type S:> 0 °C ±4.6 K, type T:> -200 °C ±2.4 K Basic error limit (operational limit at 25 °C) • Voltage, relative to input range, (+/-) • Current, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Thermocouple, relative to input range, (+/-) • Type B:> 600 °C ±1.7 K, type E:> -200 °C ±0.7 K, type J:> -210 °C ±0.8 K, type K:> -200 °C ±1.2 K, type N:> -200 °C ±1.2 K, type R:> 0 °C ±1.9 K, type S:> 0 °C ±1.9 K, type R:> -200 °C ±1.2 K, type R:> 0 °C ±1.9		
type K: > -200 °C ±2.4 K, type N: > -200 °C ±2.9 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.6 K, type T: > -200 °C ±2.9 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.6 K, type T: > -200 °C ±2.4 K Basic error limit (operational limit at 25 °C) • Voltage, relative to input range, (+/-) • Current, relative to input range, (+/-) • Resistance, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Resistance thermometer, relative to input range, (+/-) • Thermocouple, relative to input range, (+/-) • Type B: > 600 °C ±1.7 K, type E: > -200 °C ±0.7 K, type J: > -210 °C ±0.8 K, type K: > -200 °C ±1.2 K, type R: > 0 °C ±1.9 K, type S: > 0 °C ±1.9 K, type T: > -200 °C ±0.8 K Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency • Series mode interference (peak value of interference < requency • Series mode interference (peak value of interference < requency • Common mode voltage, max. • Common mode voltage, max. • Common mode interference, min. • Obagnostics function Diagnostics function Alarms • Diagnostic alarm • Limit value alarm Yes • Limit value alarm Yes • Limit value alarm Yes • Wire-break • Wire-break • Overflow/underflow Yes • Wire-break • Overflow/underflow	 Resistance thermometer, relative to input range, (+/-) 	climate: ±0.3 K
Voltage, relative to input range, (+/-) Current, relative to input range, (+/-) Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Type B:> 600 °C ±1.7 K, Pbxxx climate: ±0.2 K, Nixxx standard: ±0.3 K, Nixxx climate: ±0.15 K Type B:> 600 °C ±1.7 K, type E:> -200 °C ±0.7 K, type J:> -210 °C ±0.8 K, type K:> -200 °C ±1.2 K, type N:> -200 °C ±1.2 K, type R:> 0 °C ±1.9 K, type T:> -200 °C ±1.2 K, type R:> 0 °C ±1.9 K, type T:> -200 °C ±0.8 K Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference final value of interference (peak value of interference < reduced value of input range), min. Common mode voltage, max. Common mode interference, min. Diagnostics function Pyes Alarms Diagnostic alarm Diagnostic alarm Limit value alarm Yes; two upper and two lower limit values in each case Diagnoses Monitoring the supply voltage Wire-break Overflow/underflow Yes	Thermocouple, relative to input range, (+/-)	type K: $>$ -200 °C ±2.4 K, type N: $>$ -200 °C ±2.9 K, type R: $>$ 0 °C ±4.7 K, type
Current, relative to input range, (+/-) Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Thermocouple, relative to input range, (+/-) Thermocouple, relative to input range, (+/-) Thermocouple, relative to input range, (+/-) Type B:> 600 °C ±1.7 K, Ptxxx climate: ±0.2 K, Nixxx standard: ±0.3 K, Nixxx climate: ±0.15 K Type B:> 600 °C ±1.2 K, type E:> -200 °C ±0.7 K, type J:> -210 °C ±0.8 K, type K:> -200 °C ±1.2 K, type N:> -200 °C ±1.2 K, type R:> 0 °C ±1.9 K, type S:> 0 °C ±1.9 K, type T:> -200 °C ±0.8 K Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency Series mode interference (peak value of interference < requency Common mode voltage, max. Common mode voltage, max. Common mode interference, min. Diagnostics/status information Diagnostics/status information Diagnostics function Yes Alarms Diagnostics alarm Yes; two upper and two lower limit values in each case Diagnoses Monitoring the supply voltage Wire-break Ves; Only for 1 to 5 V, 4 to 20 mA, TC, R, and RTD Yes Overflow/underflow	Basic error limit (operational limit at 25 °C)	
Resistance, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Resistance thermometer, relative to input range, (+/-) Thermocouple, relative to input range, (+/-) Type B: > 600 °C ±1.7 K, type E: > -200 °C ±0.7 K, type J: > -210 °C ±0.8 K, type K: > -200 °C ±1.2 K, type R: > 0 °C ±1.9 K, type R: > -200 °C ±1.2 K, type R: > 0 °C ±1.9 K, type R: > 0 °C ±1.9 K, type R: > -200 °C ±0.8 K Interference voltage suppression for f = n x (f1 +/-1 %), f1 = interference frequency Series mode interference (peak value of interference < reduced value of input range), min. Common mode voltage, max. Common mode voltage, max. Common mode interference, min. Interrupts/diagnostics/status information Diagnostics function Alarms Diagnostic alarm Pes; two upper and two lower limit values in each case Diagnoses Monitoring the supply voltage Wire-break Overflow/underflow Yes Yes Yes Yes Yes Yes Yes Ye	Voltage, relative to input range, (+/-)	0.1 %
Resistance thermometer, relative to input range, (+/-) Thermocouple, relative to input range, (+/-) Thermocouple, relative to input range, (+/-) Type B: > 600 °C ±1.7 K, type E: > -200 °C ±0.7 K, type J: > -210 °C ±0.8 K, type K: > -200 °C ±1.2 K, type R: > 0 °C ±1.9 K, type R: 0 °C ±1.9 K, type R: > 0 °C ±1.9 K, type R: > 0 °C ±1.9 K, type R: > 0 °C ±1.9 K, type R: 0 °C ±	 Current, relative to input range, (+/-) 	0.1 %
climate: ±0.15 K Type B: > 600 °C ±1.7 K, type E: > -200 °C ±0.7 K, type J: > -210 °C ±0.8 K, type K: > -200 °C ±1.2 K, type N: > -200 °C ±1.2 K, type R: > 0 °C ±1.9 K, type R: 0 °C ±	 Resistance, relative to input range, (+/-) 	0.1 %
type K: > -200 °C ±1.2 K, type N: > -200 °C ±1.2 K, type R: > 0 °C ±1.9 K, type S: > 0 °C ±1.9 K, type T: > -200 °C ±1.2 K, type R: > 0 °C ±1.9 K, type T: > -200 °C ±0.8 K Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency • Series mode interference (peak value of interference < rated value of input range), min. • Common mode voltage, max. • Common mode interference, min. 10 V 60 dB Interrupts/diagnostics/status information Diagnostics function Yes • Limit value alarm Yes; two upper and two lower limit values in each case Diagnoses • Monitoring the supply voltage • Wire-break • Overflow/underflow Yes	• Resistance thermometer, relative to input range, (+/-)	
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency • Series mode interference (peak value of interference < 40 dB rated value of input range), min. • Common mode voltage, max. • Common mode interference, min. Interrupts/diagnostics/status information Diagnostics function Pes • Diagnostic alarm • Limit value alarm Piagnoses • Monitoring the supply voltage • Wire-break • Overflow/underflow Yes 40 dB 40 d	• Thermocouple, relative to input range, (+/-)	type K: $>$ -200 °C ±1.2 K, type N: $>$ -200 °C ±1.2 K, type R: $>$ 0 °C ±1.9 K, type
Series mode interference (peak value of interference < rated value of input range), min. Common mode voltage, max. Common mode interference, min. 60 dB Interrupts/diagnostics/status information Diagnostics function Pes Diagnostic alarm Limit value alarm Piagnoses Monitoring the supply voltage Wire-break Overflow/underflow 40 dB	Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference	
Common mode voltage, max. Common mode interference, min. 60 dB Interrupts/diagnostics/status information Diagnostics function Alarms Diagnostic alarm Limit value alarm Yes; two upper and two lower limit values in each case Diagnoses Monitoring the supply voltage Wire-break Ves; Only for 1 to 5 V, 4 to 20 mA, TC, R, and RTD Overflow/underflow Yes	Series mode interference (peak value of interference <	
Common mode interference, min. Interrupts/diagnostics/status information Diagnostics function Alarms Diagnostic alarm Limit value alarm Ves; two upper and two lower limit values in each case Diagnoses Monitoring the supply voltage Wire-break Overflow/underflow Overflow/underflow 60 dB Yes Yes Yes Yes Yes Yes Yes Ye		10 V
Interrupts/diagnostics/status information Diagnostics function Alarms Diagnostic alarm Limit value alarm Yes Limit value alarm Yes; two upper and two lower limit values in each case Diagnoses Monitoring the supply voltage Wire-break Overflow/underflow Yes Yes; Only for 1 to 5 V, 4 to 20 mA, TC, R, and RTD		60 dB
Alarms • Diagnostic alarm • Limit value alarm Yes; two upper and two lower limit values in each case Diagnoses • Monitoring the supply voltage • Wire-break • Overflow/underflow Yes Yes Yes; Only for 1 to 5 V, 4 to 20 mA, TC, R, and RTD Yes	Interrupts/diagnostics/status information	
 Diagnostic alarm Limit value alarm Yes; two upper and two lower limit values in each case Diagnoses Monitoring the supply voltage Wire-break Overflow/underflow Yes Yes Overflow/underflow Yes Yes Yes Overflow/underflow Yes Yes Yes Yes Yes Yes 	Diagnostics function	Yes
 Limit value alarm Yes; two upper and two lower limit values in each case Diagnoses Monitoring the supply voltage Wire-break Overflow/underflow Yes Yes; Only for 1 to 5 V, 4 to 20 mA, TC, R, and RTD Yes 	Alarms	
Diagnoses	Diagnostic alarm	Yes
 Monitoring the supply voltage Wire-break Overflow/underflow Yes Yes Yes Only for 1 to 5 V, 4 to 20 mA, TC, R, and RTD Yes 	Limit value alarm	Yes; two upper and two lower limit values in each case
 Wire-break Overflow/underflow Yes; Only for 1 to 5 V, 4 to 20 mA, TC, R, and RTD Yes 	Diagnoses	
Overflow/underflow Yes	Monitoring the supply voltage	Yes
	Wire-break	Yes; Only for 1 to 5 V, 4 to 20 mA, TC, R, and RTD
Diagnostics indication LED	Overflow/underflow	Yes
	Diagnostics indication LED	

DUNIED	V
• RUN LED	Yes; green LED
ERROR LED Maritaring of the asymptotic (RIMB 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
	8
between the channels, in groups of between the channels and backglane bus	o Yes
between the channels and backplane bus	Yes
 between the channels and the power supply of the electronics 	Tes
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)
Standards, approvals, certificates	
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
product functions / security / header	
signed firmware update	No
data integrity	No
Ambient conditions	
Ambient temperature during operation	
 horizontal installation, min. 	-25 °C; From FS08
 horizontal installation, max. 	60 °C
 vertical installation, min. 	-25 °C; From FS08
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.	310 g
Other	
Note:	Additional basic error and noise for integration time = 2.5 ms: Voltage: ± 250 mV ($\pm 0.02\%$), ± 80 mV ($\pm 0.05\%$), ± 50 mV ($\pm 0.05\%$); resistance: 150 ohms $\pm 0.02\%$; resistance thermometer: Pt100 climate: ± 0.08 K, Ni100 climate: ± 0.08 K; thermocouple: Type B, R, S: ± 3 K, type E, J, K, N, T: ± 1 K

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last modified:

3/12/2024