SIEMENS

Data sheet

6ES7531-7TF00-0AB0



SIMATIC S7-1500, analog input module AI 8xHART HF, accuracy 0.1%, 8 channels in groups of 4, common mode voltage: 30 V AC/60 V DC, diagnostics; hardware interrupts calibrate in RUN; delivery including infeed element, shielding bracket and shield terminal

General information	
Product type designation	AI 8xHART HF
HW functional status	From FS01
Firmware version	V1.0.0
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 	V17/V18 with HSP 383
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 	V2.42 / -
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.	163 mA
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 consumption from the backplane bus	1.15 W
Power loss	
Power loss, typ.	1.8 W
Analog inputs	
Number of analog inputs	8

		0
index register for deal solutions, currents • 10 a 2 m Ai 20 m Ai 20 m Ai 20 m Ai 20 m Ai 25 G. • 20 m Ai 25 G. • 20 m Ai 25 G. • 21 m Ai 20	For current measurement	8
Input resistance (10 ± 20 mÅ) • 0 to 20 mÅ • 0 to 20 mÅ		40 mA
• O = 20 mA Yes • - Inopit resistance (20 mA to +20 mA) 125 Ω • - Inopit resistance (20 mA to +20 mA) 125 Ω • - Inopit resistance (20 mA to +20 mA) 125 Ω • - Inopit resistance (20 mA to +20 mA) 125 Ω • - Inopit resistance (20 mA to +20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 Ω • - Inopit resistance (20 mA to 20 mA) 125 D • - Inopit resistance (20 mA to 20 mA) 125 D <t< td=""><td></td><td></td></t<>		
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Errors/accuracles Linearity error (relative to input range), (+/-) 0.02 % Temperature error (relative to input range), (+/-) 0.005 %/K Crosstalk between the inputs, max. -80 dB Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) 0.02 % note regarding accuracy at temperatures below 0 °C, the figures for operating error and temperature error are doubled Operational error limit in overall temperature range 0.1 %; without HART communication Basic error limit (operational limit at 25 °C) 0.05 %; without HART communication Influence of a HART signal modulated on the input signal in relation to input range 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode Hz error occurred at interference frequency suppression: 60 Hz 0.04 %; in the Standard operating mode, 0.09 % in the Fast operating mode Hz error occurred at interference frequency suppression: 50 Hz 0.04 %; in the Standard operating mode, 0.03 % in the Fast operating mode Hz error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode Hz error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode Hz error occurred at interference (peak value of interference frequency 80 dB; in the Standard operating mode, 40 dB in the Fas	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection 	820 Ω; at 24 V input voltage Yes No
Linearity error (relative to input range), (+/-) 0.02 % Temperature error (relative to input range), (+/-) 0.005 %/K Crosstalk between the inputs, max. -80 dB Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) 0.02 % note regarding accuracy at temperatures below 0 °C, the figures for operating error and temperature error are doubled Operational error limit in overall temperature range 0.1 %; without HART communication Basic error limit (operational limit at 25 °C) 0.15 %; without HART communication Influence of a HART signal modulated on the input signal in relation to input range 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode Hz 0.05 %; in the Standard operating mode, 0.1 % in the Fast operating mode error occurred at interference frequency suppression: 50 Hz 0.04 %; in the Standard operating mode, 0.03 % in the Fast operating mode error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.20 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode	 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 	820 Ω; at 24 V input voltage Yes No No
Temperature error (relative to input range), (+/-) 0.005 %/K Crosstalk between the inputs, max. -80 dB Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) 0.02 % note regarding accuracy at temperatures below 0 °C, the figures for operating error and temperature error are doubled Operational error limit in overall temperature range 0.1 %; without HART communication Basic error limit (operational limit at 25 °C) 0.1 %; without HART communication Influence of a HART signal modulated on the input signal in relation to input range 0.05 %; without HART communication error occurred at interference frequency suppression: 400 Hz 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode error occurred at interference frequency suppression: 50 Hz 0.04 %; in the Standard operating mode, 0.09 % in the Fast operating mode error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode Mz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode	 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 	820 Ω; at 24 V input voltage Yes No No
Crosstalk between the inputs, max. -80 dB Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) 0.02 % note regarding accuracy at temperatures below 0 °C, the figures for operating error and temperature error are doubled Operational error limit in overall temperature range 0.1 %; without HART communication Basic error limit (operational limit at 25 °C) 0.1 %; without HART communication Influence of a HART signal modulated on the input signal in relation to input range 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode error occurred at interference frequency suppression: 60 Hz 0.05 %; in the Standard operating mode, 0.1 % in the Fast operating mode error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.09 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode	 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 	820 Ω; at 24 V input voltage Yes No No No
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) 0.02 % note regarding accuracy at temperatures below 0 °C, the figures for operating error and temperature error are doubled Operational error limit in overall temperature range 0.1 %; without HART communication Basic error limit (operational limit at 25 °C) 0.1 %; without HART communication Current, relative to input range, (+/-) 0.05 %; without HART communication Influence of a HART signal modulated on the input signal in relation to input range 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode Hz 0.05 %; in the Standard operating mode, 0.1 % in the Fast operating mode error occurred at interference frequency suppression: 60 Hz 0.04 %; in the Standard operating mode, 0.09 % in the Fast operating mode error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with three-wire connection for resistance measurement with four-wire connection Errors/accuracies Linearity error (relative to input range), (+/-) 	820 Ω; at 24 V input voltage Yes No No No 0.02 %
range), (+/-) at temperatures below 0 °C, the figures for operating error and temperature error are doubled Operational error limit in overall temperature range 0.1 %; without HART communication Basic error limit (operational limit at 25 °C) 0.1 %; without HART communication Influence of a HART signal modulated on the input signal in relation to input range 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode error occurred at interference frequency suppression: 400 Hz 0.05 %; in the Standard operating mode, 0.1 % in the Fast operating mode error occurred at interference frequency suppression: 50 Hz 0.04 %; in the Standard operating mode, 0.09 % in the Fast operating mode error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode error occurred at interference frequency suppression: 20 Mz 0.02 %; in the Standard opera	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with three-wire connection for resistance measurement with four-wire connection Errors/accuracies Linearity error (relative to input range), (+/-) Temperature error (relative to input range), (+/-)	820 Ω; at 24 V input voltage Yes No No No 0.02 % 0.005 %/K
note regarding accuracy at temperatures below 0 °C, the figures for operating error and temperature error are doubled Operational error limit in overall temperature range 0.1 %; without HART communication Basic error limit (operational limit at 25 °C) 0.1 %; without HART communication Influence of a HART signal modulated on the input signal in relation to input range 0.05 %; without HART communication error occurred at interference frequency suppression: 400 Hz 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode Hz error occurred at interference frequency suppression: 60 Hz 0.04 %; in the Standard operating mode, 0.09 % in the Fast operating mode Hz error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode Hz error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode Hz error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode Hz error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode Hz error occurred at interference frequency suppression: 20 Mdz; in the Standard operating mode, 0.03 % in the Fast operating mode Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode Mz	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with three-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection Errors/accuracies Linearity error (relative to input range), (+/-) Temperature error (relative to input range), (+/-) Crosstalk between the inputs, max. 	820 Ω; at 24 V input voltage Yes No No No 0.02 % 0.005 %/K -80 dB
Operational error limit in overall temperature range • Current, relative to input range, (+/-) 0.1 %; without HART communication Basic error limit (operational limit at 25 °C) • Current, relative to input range, (+/-) • Current, relative to input range, (+/-) 0.05 %; without HART communication Influence of a HART signal modulated on the input signal in relation to input range • error occurred at interference frequency suppression: 400 Hz • error occurred at interference frequency suppression: 60 Hz 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode Hz • error occurred at interference frequency suppression: 50 Hz 0.04 %; in the Standard operating mode, 0.09 % in the Fast operating mode Hz • error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode • error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode • error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode • error occurred at interference (peak value of interference <	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with three-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection Errors/accuracies Linearity error (relative to input range), (+/-) Temperature error (relative to input range), (+/-) Crosstalk between the inputs, max. Repeat accuracy in steady state at 25 °C (relative to input 	820 Ω; at 24 V input voltage Yes No No No 0.02 % 0.005 %/K -80 dB
Operational error limit in overall temperature range • Current, relative to input range, (+/-) 0.1 %; without HART communication Basic error limit (operational limit at 25 °C) • Current, relative to input range, (+/-) 0.05 %; without HART communication Influence of a HART signal modulated on the input signal in relation to input range • error occurred at interference frequency suppression: 400 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode • error occurred at interference frequency suppression: 60 0.05 %; in the Standard operating mode, 0.1 % in the Fast operating mode • error occurred at interference frequency suppression: 50 0.04 %; in the Standard operating mode, 0.09 % in the Fast operating mode • error occurred at interference frequency suppression: 10 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode • error occurred at interference frequency suppression: 10 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode • error occurred at interference frequency suppression: 10 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode • error occurred at interference (peak value of interference <	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection Errors/accuracies Linearity error (relative to input range), (+/-) Temperature error (relative to input range), (+/-) Crosstalk between the inputs, max. Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) 	820 Ω; at 24 V input voltage Yes No No No 0.02 % 0.005 %/K -80 dB 0.02 %
• Current, relative to input range, (+/-) 0.1 %; without HART communication Basic error limit (operational limit at 25 °C) • Current, relative to input range, (+/-) 0.05 %; without HART communication Influence of a HART signal modulated on the input signal in relation to input range • error occurred at interference frequency suppression: 400 Hz 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode Hz • error occurred at interference frequency suppression: 60 Hz 0.05 %; in the Standard operating mode, 0.1 % in the Fast operating mode Hz • error occurred at interference frequency suppression: 50 Hz 0.04 %; in the Standard operating mode, 0.09 % in the Fast operating mode Hz • error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode • error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode • error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode • error occurred at interference (peak value of interference 80 dB; in the Standard operating mode, 40 dB in the Fast operating mode	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection Errors/accuracies Linearity error (relative to input range), (+/-) Temperature error (relative to input range), (+/-) Crosstalk between the inputs, max. Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) 	820 Ω; at 24 V input voltage Yes No No No 0.02 % 0.005 %/K -80 dB 0.02 % at temperatures below 0 °C, the figures for operating error and temperature
Basic error limit (operational limit at 25 °C) 0.05 %; without HART communication • Current, relative to input range, (+/-) 0.05 %; without HART communication Influence of a HART signal modulated on the input signal in relation to input range 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode Hz • error occurred at interference frequency suppression: 60 Hz 0.19 %; in the Standard operating mode, 0.1 % in the Fast operating mode Hz • error occurred at interference frequency suppression: 50 Hz 0.04 %; in the Standard operating mode, 0.09 % in the Fast operating mode Hz • error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode Nz • error occurred at interference frequency suppression: 20 Hz 0.20 %; in the Standard operating mode, 0.03 % in the Fast operating mode Nz • error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode Nz • error occurred at interference frequency suppression: 20 Hz 0.20 %; in the Standard operating mode, 0.03 % in the Fast operating mode Nz • error occurred at interference frequency suppression: 20 Hz 0.20 %; in the Standard operating mode, 0.03 % in the Fast operating mode Nz • error occurred at interference (peak value of interference <	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection Errors/accuracies Linearity error (relative to input range), (+/-) Temperature error (relative to input range), (+/-) Crosstalk between the inputs, max. Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) note regarding accuracy	820 Ω; at 24 V input voltage Yes No No No 0.02 % 0.005 %/K -80 dB 0.02 % at temperatures below 0 °C, the figures for operating error and temperature
 Current, relative to input range, (+/-) 0.05 %; without HART communication Influence of a HART signal modulated on the input signal in relation to input range error occurred at interference frequency suppression: 400 Hz error occurred at interference frequency suppression: 60 Hz error occurred at interference frequency suppression: 50 Hz error occurred at interference frequency suppression: 50 Hz error occurred at interference frequency suppression: 50 Hz error occurred at interference frequency suppression: 10 Hz error occurred at interference (peak value of interference frequency Series mode interference (peak value of interference 80 dB; in the Standard operating mode, 40 dB in the Fast operating mode 	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection the resistance measurement with four-wire connection for resistance measurement with four-wire connection the resistance measurement with four-wire connection for resistance	820 Ω; at 24 V input voltage Yes No No No 0.02 % 0.005 %/K -80 dB 0.02 % at temperatures below 0 °C, the figures for operating error and temperature error are doubled
Influence of a HART signal modulated on the input signal in relation to input range • error occurred at interference frequency suppression: 400 Hz 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode hz • error occurred at interference frequency suppression: 60 Hz 0.05 %; in the Standard operating mode, 0.1 % in the Fast operating mode hz • error occurred at interference frequency suppression: 50 Hz 0.04 %; in the Standard operating mode, 0.09 % in the Fast operating mode hz • error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode hz • error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode hz • Series mode interference (peak value of interference 80 dB; in the Standard operating mode, 40 dB in the Fast operating mode	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection for resistance measurement with four-wire connection tor resistance measurement with four-wire connection for resistance measurement with four-wire connection tor resistance measurement (relative to input range), (+/-) tor resistance measurement measurement with four-wire range tor resistance measurement measurement with four-wire range tor resistance measurement measurement measurement measurem	820 Ω; at 24 V input voltage Yes No No No 0.02 % 0.005 %/K -80 dB 0.02 % at temperatures below 0 °C, the figures for operating error and temperature error are doubled
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Hz • error occurred at interference frequency suppression: 60 Hz 0.05 %; in the Standard operating mode, 0.1 % in the Fast operating mode Hz • error occurred at interference frequency suppression: 50 Hz 0.04 %; in the Standard operating mode, 0.09 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency 80 dB; in the Standard operating mode, 40 dB in the Fast operating mode	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with four-wire connection for resistance wire four range, (+/-) for regarding accuracy for resistance measurement wire four range, (+/-) Basic error limit (operational limit at 25 °C) fo	820 Ω; at 24 V input voltage Yes No No No No 0.02 % 0.005 %/K -80 dB 0.02 % at temperatures below 0 °C, the figures for operating error and temperature error are doubled 0.1 %; without HART communication 0.05 %; without HART communication
 error occurred at interference frequency suppression: 60 Hz error occurred at interference frequency suppression: 50 Hz error occurred at interference frequency suppression: 10 Hz out with the standard operating mode, 0.09 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency Series mode interference (peak value of interference 80 dB; in the Standard operating mode, 40 dB in the Fast operating mode 	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with four-wire connection for resistance error (relative to input range, (+/-) for error limit (operational limit at 25 °C) for current, relative to input range, (+/-) Influence of a HART signal modulated on the input signal in relation 	820 Ω; at 24 V input voltage Yes No No No 0.02 % 0.005 %/K -80 dB 0.02 % at temperatures below 0 °C, the figures for operating error and temperature error are doubled 0.1 %; without HART communication 0.05 %; without HART communication
 error occurred at interference frequency suppression: 50 Hz error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode 	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with four-wire connection for resistance accuracy in steady state at 25 °C (relative to input range, (+/-)	820 Ω; at 24 V input voltage Yes No No No 0.02 % 0.005 %/K -80 dB 0.02 % at temperatures below 0 °C, the figures for operating error and temperature error are doubled 0.1 %; without HART communication 0.05 %; without HART communication
 error occurred at interference frequency suppression: 10 Hz 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency Series mode interference (peak value of interference < 80 dB; in the Standard operating mode, 40 dB in the Fast operating mode 	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with four-wire connection for resistance four transe, (+/-) Influence of a HART signal modulated on the input signal in relation error occurred at interference frequency suppression: 400 Hz	820 Ω; at 24 V input voltage Yes No No No No 0.02 % 0.005 %/K -80 dB 0.02 % at temperatures below 0 °C, the figures for operating error and temperature error are doubled 0.1 %; without HART communication 0.05 %; without HART communication to input range 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode
• Series mode interference (peak value of interference < 80 dB; in the Standard operating mode, 40 dB in the Fast operating mode	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with four-wire connection for resistance frequency suppression: fon Hz error occurred at interference frequency suppression: 50 	820 Ω; at 24 V input voltage Yes No 0.02 % at temperatures below 0 °C, the figures for operating error and temperature error are doubled 0.1 %; without HART communication 0.05 %; without HART communication 0.05 %; without HART communication 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode 0.05 %; in the Standard operating mode, 0.1 % in the Fast operating mode
• Series mode interference (peak value of interference < 80 dB; in the Standard operating mode, 40 dB in the Fast operating mode	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with four-wire connection for resistance frequency suppression: fon Hz error occurred at interference frequency suppression: fon Hz error occurred at interference frequency suppression: fon Hz 	820 Ω; at 24 V input voltage Yes No 0.02 % at temperatures below 0 °C, the figures for operating error and temperature error are doubled 0.1 %; without HART communication 0.05 %; without HART communication 0.05 %; without HART communication 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode 0.05 %; in the Standard operating mode, 0.1 % in the Fast operating mode 0.04 %; in the Standard operating mode, 0.09 % in the Fast operating mode
	 Burden of 2-wire transmitter, max. for current measurement as 4-wire transducer for resistance measurement with two-wire connection for resistance measurement with four-wire connection for state at 25 °C (relative to input range, (+/-) Basic error limit (operational limit at 25 °C) Current, relative to input range, (+/-) Influence of a HART signal modulated on the input signal in relation error occurred at interference frequency suppression: 60 Hz <l< td=""><td>820 Ω; at 24 V input voltage Yes No O.02 % at temperatures below 0 °C, the figures for operating error and temperature error are doubled 0.102 % other temperature below 0 °C, the figures for operating error and temperature error are doubled 0.11 %; without HART communication 0.05 %; without HART communication 0.05 %; without HART communication 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode 0.05 %; in the Standard operating mode, 0.1 % in the Fast operating mode 0.04 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode</td></l<>	820 Ω; at 24 V input voltage Yes No O.02 % at temperatures below 0 °C, the figures for operating error and temperature error are doubled 0.102 % other temperature below 0 °C, the figures for operating error and temperature error are doubled 0.11 %; without HART communication 0.05 %; without HART communication 0.05 %; without HART communication 0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode 0.05 %; in the Standard operating mode, 0.1 % in the Fast operating mode 0.04 %; in the Standard operating mode, 0.03 % in the Fast operating mode 0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode

Common mode voltage, max.	60 V DC/30 V AC		
Common mode interference, min.	80 dB		
Interrupts/diagnostics/status information			
Diagnostics function	Yes		
Alarms			
Diagnostic alarm	Yes		
Limit value alarm	Yes; two upper and two lower limit values in each case		
Diagnoses			
 Monitoring the supply voltage 	Yes		
• Wire-break	Yes; With 4 mA to 20 mA, channel by channel		
Overflow/underflow	Yes		
Diagnostics indication LED			
• RUN LED	Yes; green LED		
• ERROR LED	Yes; red LED		
 Monitoring of the supply voltage (PWR-LED) 	Yes; green LED		
Channel status display	Yes; green LED		
 for channel diagnostics 	Yes; red LED		
for module diagnostics	Yes; red LED		
Potential separation			
Potential separation analog inputs			
between the channels	No; however, increased permissible potential difference between the inputs.		
• between the channels, in groups of	8		
between the channels and backplane bus	Yes		
 between the channels and the power supply of the electronics 	No		
Potential separation channels			
between the channels	No		
 between the channels and backplane bus 	Yes		
 between the channels and the power supply of the electronics 	No		
Permissible potential difference			
between different circuits	60 V DC/30 V AC		
between the inputs (UCM)	60 V DC/30 V AC		
Isolation			
Isolation tested with	707 V DC (type test)		
Standards, approvals, certificates			
Ecological footprint			
environmental product declaration	Yes		
Global warming potential			
— global warming potential, (total) [CO2 eq]	38.6 kg		
— global warming potential, (during production) [CO2	14.4 kg		
eq]			
— global warming potential, (during operation) [CO2 eq]	24.6 kg		
— global warming potential, (after end of life cycle) [CO2 eq]	-0.44 kg		
product functions / security / header			
signed firmware update	No		
data integrity	No		
Ambient conditions			
Ambient temperature during operation			
 horizontal installation, min. 	-30 °C		
 horizontal installation, max. 	60 °C		
 vertical installation, min. 	-30 °C		
 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.		270	g			
lassifications		_			_	
				Version	Classification	
			eClass	14	27-24-22-01	
			eClass	12	27-24-22-01	
			eClass	9.1	27-24-22-01	
			eClass eClass	9	27-24-22-01 27-24-22-01	
			eClass	8 7.1	27-24-22-01	
			eClass	6	27-24-22-01	
			ETIM	9	EC001420	
			ETIM	8	EC001420	
			ETIM	7	EC001420	
pprovals / Certificates		_	L TIM	,	20001420	
General Product Appr						
	1.112	<u>KC</u>	Miscellaneous	-	KC	
CE	UK CA	<u>NC</u>	Miscellaneous	መ	<u>KC</u>	
EG-Konf.	CA			<u> </u>		
				01		
General Product Approval	EMV	For use in hazardou	s locations			
A	KC	Ē	EM	CCC-Ex		
తు		জ			(EX)	
RCM		UL			ATEX	
For use in hazardous	locations		Marine / Shipping			
Type Examination Cer- tificate	IECE ₂	Miscellaneous			煮煮	
lincate					DNV	
	IECEx		ABS	BUREAU	DNV	
				VERITAS		
Marine / Shipping						
		-		CCS (China Classifier		
Lloyds	<u>NK / Nippon Kaiji Ky-</u> <u>okai</u>			CCS (China Classifica- tion Society)	VD	
register					ADVEAU REGISTER	
LRS		SINA	RMRS			
Environment						
EPD						
						
last modified:		10/9	9/2024 🖸			