## 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
<ul> <li>Isochronous mode</li> </ul>	No
Prioritized startup	No
<ul> <li>Measuring range scalable</li> </ul>	No
<ul> <li>Scalable measured values</li> </ul>	No
<ul> <li>Adjustment of measuring range</li> </ul>	No
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	V17/V18 with HSP 383
STEP 7 configurable/integrated from version	V5.5 SP3 / -
<ul> <li>PROFIBUS from GSD version/GSD revision</li> </ul>	V1.0 / V5.1
<ul> <li>PROFINET from GSD version/GSD revision</li> </ul>	V2.42 / -
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<>		
- ImplifeedBalance (0 to 20 mA)     20 mA vo 20 mA     Yes     - ImplifeedBalance (20 mA to +20 mA)     125 0     with to 20 mA     Yes     - ImplifeedBalance (20 mA to +20 mA)     125 0     with to 20 mA     Yes     - ImplifeedBalance (20 mA to +20 mA)     125 0     with the 20 mA     Yes     - ImplifeedBalance     - Interference     with the 20 mA     Integration     Support     - Interference     with the 20 mA     Integration     Integrating     (Signen-Delta)     Integrating     (Signen-Delt		Voc
- 20 mA to -20 mA     - Input resistance (20 mA to -20 mA)     - Ispect resistance (20 mA to 20 mA)     - Ispect resistance (20 mA to -20 mA)     - Ispect resistance (20 mA)     - Ispect resistance (20 mA)     - Ispect resistance (20 mA)		
- Input resistance (20 mA to +20 mA)     Yes     - Input resistance (20 mA to 20 mA)     Yes     - Input resistance (20 mA to 20 mA)     Yes     - Input resistance (20 mA to 20 mA)     Yes     - Input resistance (20 mA to 20 mA)     Yes     - Input resistance (20 mA to 20 mA)     Yes     - Input resistance (20 mA to 20 mA)     Yes     - Input resistance (20 mA to 20 mA)     Insegration		
- 4 mA to 20 mA     - Imput resistance (4 mA to 20 mA)     - 10 put resistance (4		
— hop trasistance (4 mA lo 20 mA)         125 Ω; plus approx. 17 Ohn when using the switch against M           Cable length         800 m           Analog value generation for the inputs         Integrating (Sigma-Deta)           Measurement principle         Integration and conversion time, including integration time (sigma-Deta)           Integration and conversion time, including integration time (ms)         Fast Mode: 7 / 22 / 25 / 166 m; Standard Mode: 12 / 55 / 65 / 300 ms           Integration time (ms)         Fast Mode: 7 / 22 / 25 / 160 m; Standard Mode: 12 / 55 / 65 / 300 ms           Integration time (ms)         Fast Mode: 7 / 22 / 25 / 160 m; Standard Mode: 12 / 55 / 65 / 300 ms           Integration time (ms)         Fast Mode: 7 / 22 / 25 / 160 m; Standard Mode: 12 / 55 / 65 / 300 ms           Integration time (ms)         Fast Mode: 7 / 22 / 25 / 160 m; Standard Mode: 12 / 55 / 65 / 300 ms           Integration time of the module (all channels or module in the channel D and 4, 1 and 5, etc measure in pairs simultaneously. The slower module in the channel D and 4, 1 and 5, etc measure in pairs simultaneously. The slower module in the channel D and 4, 1 and 5, etc measure in pairs simultaneously. The slower module in the channel D and 4, 1 and 5, etc measure in pairs simultaneously. The slower module in the channel D and 4, 1 and 5, etc measure in the channel D and 4, 1 and 5, etc measurement as 2 write transducer           • Spin: None         Yes           • Spin: None         Yes           • Spin: None         Yes           • Spin		
Cable length       800 m         Analog value generation for the inputs       800 m         Messurement principle       integrating (Signa-Detta)         Integration addression time, parameterizable       integrating (Signa-Detta)         Integration addression time, parameterizable       Yes         Integration addression to interference       16 bit         Integration addression to interference       10 / 00 / 00 / 00 / 00 / 00 / 00 / 00 /	• 4 mA to 20 mA	Yes
exhalded, max.         800 m           Analog value generation for the inputs         Integrating (Sigma-Deta)           Measurement principle         Integrating (Sigma-Deta)           Integration and conversion time/resolution per channel         Integration and conversion time/resolution per channel           Resolution with overrange (Linciding sign), max.         16 bit           Integration time, conversion time, including integration time (ms)         Fast Mode: 7 / 22 / 57 / 100 ms, standard Mode: 12 / 55 / 65 / 300 ms           Integration time (ms)         Fast Mode: 7 / 22 / 57 / 100 ms, standard Mode: 12 / 55 / 65 / 300 ms           Interference voltage suppression for interference frequency fin h fz         channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, cc. measure simultaneously. The slower channel 0 and 4, 1 and 5, ccc. measure sintereance the slower ch	— Input resistance (4 mA to 20 mA)	125 $\Omega$ ; plus approx. 17 Ohm when using the switch against M
Analog value generation for the inputs         Integration and conversion time presedution per channel         Integration and conversion time insecution per channel           • Resolution with overrange (bit including sign), max.         16 bit           • Integration and conversion time, including integration gen, the security of the security. The security of the security. The security of the security of the security of the security of the security. The security of the security of the security of the security. The security of the security of the security of the security. The security of the security of the security. The security of the security. The security of the security of the security of the security. The security of the security. The security of the	Cable length	
Measurement principle         integrating (Sigma-Dotta)           Integration and conversion time/resolution per channel         16 bit           - Resolution with overange (bit including sigh), max. - Integration time, (ms)         16 bit           - Basic conversion time, including information time (ms)         Fast Mode: 7.122.125.106 ms; Standard Mode: 12.155.166.7.200 ms; Standard Mode: 12.155.166.7.200 ms;           - Integration time, including information to interference requerity (11 hit?)         - Basic conversion time of the modulo (all channels research)           - Data concurred in time of the modulo (all channels research)         - Fast Mode: 7.122.125.106 ms; Standard Mode: 12.155.165.7.306 ms           - Data concurred in time of the modulo (all channels research)         - Fast Mode: 7.122.125.100 ms; Standard Mode: 12.155.100 ms; Standard Park 4.1 and 5. net: measure in pairs simultaneously. The advoration conversion times of the channel pairs.           - parameterizable         Yes           - Step: Ivon         Yes           - Step: Ivon         Yes           - Step: Ivon         Yes           - for outage measurement         2-wire transducer           - for outage measurement         No           - for outage measurement with two-wire connection         No           - for resistance measurement, with measure connection         No           - for resistance measurement, with two-wire connection         No <td< td=""><td><ul> <li>shielded, max.</li> </ul></td><td>800 m</td></td<>	<ul> <li>shielded, max.</li> </ul>	800 m
Integration and conversion time/resolution per channel       16 bit         • Resolution with overrange (bit including sign), max.       16 bit         • Integration time, parameterizable       Yes         • Integration time (ms)       5 bit Yes         • Basic coversion time. Including integration time (ms)       Fast Moder. 7: 20 / 100 ms, standard Mode: 12 / 55 / 56 / 308 ms         • Interference variage suppression for interference frequency if in 1z       Fast Moder. 7: 20 / 100 ms, standard Mode: 12 / 55 / 56 / 308 ms         • assic securition time of the module (all channels reased)       Channel 0 and 1, and 5, etc measures in paris innutineously. The allower channel of ach paris is execution time of the channel pairs.         • parameterizable       Yes         • Step: None       Yes         • Step: Medium       Yes         • for voltage measurement as 2-wire fransducer       Yes         • for outage measurement as 4-wire fransducer       Yes         • for outage measurement as 4-wire fransducer       Yes         • for outage measurement with four-wire connection       No         • for resistance measurement with four-wire connection       No         • for resista	Analog value generation for the inputs	
Resolution with overrange (bit including sign), max.     Integration time, parameterizable     Integration time (ms)     Basic conversion time, including integration time (ms)     Basic conversion time, including integration time (ms)     Interference voltage suppression for interference     requency f1 in Hz     Basic conversion time of the module (all channels     released)     Interference voltage suppression for interference     requency f1 in Hz     Basic conversion time of the module (all channels     released)     Sequence voltage suppression for interference     requency f1 in Hz     Basic conversion time of the module (all channels     released)     Sequence voltage suppression for interference     requency f1 in Hz     Sequence voltage suppression for interference     reparameterizable     Ves     Step: None     Ves     Ves     Step: None     Ves     Step: None     Ves     Ves     Step: None     Ves     Ves     Step: None     Ves     Ves     Step: None     Ves     Ves     Ves     Step: None     Ves	Measurement principle	integrating (Sigma-Delta)
Integration time, parameterizable     Integration time, (ins)     Integration time, other module (all channels accounting of measured values     Integration time, of the module (all channels accounting of measured values     Integration time, of the module (all channels accounting of the channel pairs.     Integration time, of the module (all channels accounting of the channel pairs)     Integration time, of the module is calculated by adding the basic accounting time of the channel pairs.     Integration time, of the module is calculated by adding the basic accounting time accountis time accounting tinteracte	Integration and conversion time/resolution per channel	
Integration time, parameterizable     Yes       Integration time (ms)     Fast Mode: 7.12/176/106 ms; Standard mode: 7.5/50/80/300 ms       Basic conversion time, including integration time (ms)     Fast Mode: 7.12/176/106 ms; Standard Mode: 12/15/165/308 ms       Interference voltage suppression for interference frequency fit h 1/2     Channel 0 and 4, 1 and 5, etc. measure in pairs simultaneously. The slower channel of each pairs determines the basic execution time of the channel pairs. The basic execution time of the module (all channels released)       Smoothing of measured values     Ves       • parameterizable     Yes       • Step: None     Yes       • Step: Modum     Yes       • For outrant measurements     No       • for outrant measurement as 2-wire transducer     Yes       • for outrant measurement as 2-wire transducer     Yes       • for outrant measurement as 4-wire transducer     Yes       • for relation emasurement with thre-wire connection     No       • for relation ensur	<ul> <li>Resolution with overrange (bit including sign), max.</li> </ul>	16 bit
• Integration time (ms)       Fast mode: 2.5 / 16.67 / 20 / 100 ms, standard mode: 7.5 / 50 / 60 / 300 ms         • Integration time, including integration time (ms)       Fast mode: 2.7 / 22 / 25 / 106 ms, Standard Mode: 12 / 55 / 55 / 308 ms         • Integration time, including integration time (ms)       Fast Mode: 7 / 22 / 25 / 106 ms, Standard Mode: 12 / 55 / 55 / 308 ms         • Basic conversion time of the module (all channels released)       Channel 0 and 4.1 and 5, etc. measure in pairs simultaneously. The slower channel of each pair determines the basic execution time of the channel pairs.         Smoothing of measured values       Ves         • parameterizable       Yes         • Step: Nome       Yes         • Step: Nome       Yes         • Step: Nome       Yes         • Step: Nome       Yes         • for outge measurement as 2 wire transducer       Yes         • for outrent measurement as 4 wire transducer       Yes         • for outrent measurement as 4 wire transducer       Yes         • for outrent measurement with thow-wire connection       No         • for outrent measureme		Yes
• Basic conversion time, including integration time (ms)       Fast Mode: 7 / 22 / 25 / 106 ms; Standard Mode: 12 / 55 / 65 / 308 ms         • Interference votage suppression for interference frequency of In hiz       chamel of aceh (her has a conversion time of the module (a) channels are has a conversion time of the channel park. The basic execution time of the channel park.         Smoothing of measured values       Yes         • parameterizable       Yes         • Step: Modium       Yes         • Step: Medium       Yes         • Step: Medium       Yes         • for outrent measurement as -wire transducer       Yes         • for outrent measurement as -wire transducer       Yes         • for outrent measurement with three-wire connection       No         • for resistance measurement with three-wire connec		
• Interference voltage suppression for interference frequency ff in h2;       • Basic execution time of the module (all channels released)       • Channel 0 and 4, 1 and 5, 41; and 41; and 5, 4		
Integration of the module (all channels released)       channel 0 and 4, 1 and 5, etc. measure in pairs simultaneously. The slower channel of each pair determines the basic execution time of the channel pair. The basic execution time of the module is calculated by adding the basic conversion times of the module is calculated by adding the basic conversion times of the module is calculated by adding the basic conversion times of the module is calculated by adding the basic conversion times of the module is calculated by adding the basic conversion times of the module is calculated by adding the basic conversion times of the module is calculated by adding the basic conversion times of the module is calculated by adding the basic conversion times of the module is calculated by adding the basic conversion times of the module is calculated by adding the basic conversion times of the module is calculated by adding the basic conversion times of the module is calculated by adding the basic conversion times of the module is calculated by adding the basic conversion times of the channel pair. The basic exclusion time of the module is calculated by adding the basic conversion times of the channel pair. The basic exclusion time of the module is calculated by adding the basic conversion times of the channel pair. The basic exclusion time of the module is calculated by adding the basic conversion times of the channel pair. The basic exclusion time of the module is calculated by adding the basic conversion times of the channel pair. The basic exclusion time of the module is calculated by adding the basic conversion times of the channel pair. The basic exclusion time of the module is calculated by adding the basic conversion times of the channel pair. The basic exclusion time of the module is calculated by adding the basic conversion time of the conversine the pair. The basic exclusion termodule i		
eBasic execution time of the module (all channels released)       channel 0 and 4, 1 and 5, etc. measure nairs simultaneously. The slower channel of each pair determines the basic execution time of the channel pair.         Singe: None       Yes         • for outginge measurement       No         • for outginge measurement       No         • for outginge measurement as 4-wire transducer       Yes         • for outginge measurement with two-wire connection       No         • for outginge measurement with two-wire connection       No         • for outginge measurement with two-wire connection       No <t< td=""><td></td><td></td></t<>		
release()       channel of each pair determines the basic execution time of the channel pair.         Smoothing of measured values       -         • parameterizable       Yes         • step: None       Yes         • Step: High       Yes         Connection of signal encoders       No         • for outrant measurement as 2-wire transducer       Yes         - Burden of 2-wire transmitter, max.       820 (2) at 24 V input voltage         • for outrant measurement as 4-wire transducer       Yes         • for outrant measurement as 4-wire transducer       Yes         • for outrant measurement with two-wire connection       No         • for resistance measurement		channel 0 and 4 1 and 5 etc. measure in pairs simultaneously. The slower
Smoothing of measured values            • parameterizable         • parameterizable         • Step: None         • Step: None         • Step: None         • Step: None         • Step: Medium         • Step: High         • Yes         • Step: High         • Yes         • Step: Mone         • Step: Medium         • Step: High         • Yes         • Step: Medium         • Step: Medium         • Step: High         • Yes         • Step: Medium         • Step: Mediu		
Smoothing of measured values       Yes         • parameterizable       Yes         • Step: None       Yes         • Step: None       Yes         • Step: None       Yes         • Step: Medium       Yes         • Step: High       Yes         Encodor       Yes         For current measurement as 4-wire transducer       Yes         • for resistance measurement with four-wire connection       No         • for resistance measurement with four-wire connection       No         Temperature error (relative to input range), (+/-)       0.02 %         Constatik between the inputs, max.       -80 dB         Repeat accuracy in steady state at 25 *C (relative to input range, (+/-)       0.02 %     <		
• parameterizable     Yes       • Step: None     Yes       • Step: None     Yes       • Step: None     Yes       • Step: Medium     Yes       • Step: High     Yes <b>Connection of signal encoders</b> No       • for voltage measurement     No       • for current measurement as 2-wire transducer     Yes       • Burden of 2-wire transmitter, max.     820 Q; at 24 V input voltage       • for current measurement with thre-wire connection     No       • for resistance measurement with four-wire connection     No       • for resistance four (relative to input rang		conversion times of the channel pairs.
<ul> <li>Step: None</li> <li>Yes</li> <li>Step: Iw</li> <li>Yes</li> <li>Step: High</li> <li>Yes</li> <li>Step: High</li> <li>Yes</li> </ul> Encoder Connection of signal encoders <ul> <li>or or voltage measurement</li> <li>for current measurement as 2-wire transducer</li> <li>Yes</li> <li>Or ourrent measurement as 4-wire transducer</li> <li>Yes</li> <li>or current measurement as 4-wire transducer</li> <li>Yes</li> <li>or current measurement as 4-wire transducer</li> <li>Yes</li> <li>or current measurement with two-wire connection</li> <li>No</li> <li>No</li> <li>or resistance measurement with two-wire connection</li> <li>No</li> <li>Constatk between the inputs, max.</li> <li>40 dB</li> <li>Repeat accuracy in steady state at 25 °C (relative to input range).</li> <li>Ouce static static</li></ul>		
<ul> <li>Step: low Yes</li> <li>Step: Medium Yes</li> <li>Step: High Yes</li> </ul> Encoder Connection of signal encoders <ul> <li>for current measurement as 2-wire transducer</li> <li>for current measurement as 2-wire transducer</li> <li>Burden of 2-wire transmitter, max.</li> <li>60 current measurement as 4-wire transducer</li> <li>For current measurement as 4-wire transducer</li> <li>for current measurement as 4-wire transducer</li> <li>for current measurement with theo-wire connection</li> <li>No</li> <li>for resistance measurement with thou-wire connection</li> <li>No</li> <li>for resistance measurement with four-wire connection</li> <li>No</li> <li>for resistance measurement with thread</li> <li>for costalk between the input range, (+/-)</li> <li>0.02 %</li> <li>Crosstalk between the input system at 25 °C (relative to input range</li> <li>for the regarding accuracy</li> <li>at temperature are doubled</li> <li>Operational error limit in overall temperature range</li> <li>Current, relative to input range, (+/-)</li> <li>0.1 %; without HART communication</li> <li>Influence of a HART signal modulated on the input signal in relation to input range.</li> <li>for occurred</li></ul>	parameterizable	
• Step: Medium       Yes         • Step: High       Yes         Encoder       Connection of signal encoders         • for voltage measurement as 2-wire transducer       Yes         - Burden 07 - Wire transmitter, max.       820 Q; at 24 V input voltage         • for current measurement as 4-wire transducer       Yes         • for resistance measurement with two-wire connection       No         • for resistance measurement with four-wire connection       No	Step: None	Yes
Step: High Yes  Facoder  Connection of signal encoders      of or voltage measurement     of a voltage measurement is 2-wire transducer     — Burden of 2-wire transmitter, max.     So Q; at 24 V input voltage     of resistance measurement with free-wire connection     of resistance measurement with three-wire connection     of resistance measurement with four-wire connection     of resistance measurement area doubled     of resistance measurement area doubled     ourent, relative to input range, (+/-)     o.05 %; without HART communication     Infuence of a HART signal mod	Step: low	Yes
Encoder         Connection of signal encoders         • for voltage measurement         • for current measurement as 2-wire transducer         • Burden of 2-wire transmitter, max.         • for current measurement as 4-wire transducer         • for current measurement as 4-wire transducer         • for current measurement with two-wire connection         • for resistance measurement with two-wire connection         • for resistance measurement with four-wire connection         • for resistance measurement with transmitter, max.         • Barie current, relative to input range), (+/-)         Constalk between the inputs, max.         • Bod B         Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)         • note regarding accuracy         • at temperatures below 0 °C, the figures for operating error and temperature error are doubled         Operational error limit (operational limit at 25 °C)         • Current, relative to input range, (+/-)         • Current, relative to input range, (+/-)         • error occurred at interference frequency suppression: 400         • error	Step: Medium	Yes
Connection of signal encoders       No         • for voltage measurement as 2-wire transducer       Yes         — Burden of 2-wire transmitter, max.       820 Ω; at 24 V input voltage         • for current measurement as 4-wire transducer       Yes         • for current measurement with two-wire connection       No         • for resistance measurement with two-wire connection       No         • for resistance measurement with fuer-wire connection       No         Errors/accuracies       0.02 %         Linearity error (relative to input range), (+/-)       0.02 %         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       •         • Current, relative to input range, (+/-)       0.1 %; without HART communication         Intelement occurred at interference frequency suppression: 60       0	Step: High	Yes
• for voltage measurement       No         • for current measurement as 2-wire transducer       Yes         - Burden of 2-wire transmitter, max.       820 Ω; at 24 V input voltage         • for resistance measurement as 4-wire transducer       Yes         • for resistance measurement with two-wire connection       No         • for resistance measurement with two-wire connection       No         • for resistance measurement with tree-wire connection       No         • for resistance measurement with four-wire connection       No         Errors/accuracies       Linearity error (relative to input range), (+/-)       0.02 %         Temperature error (relative to input range), (+/-)       0.02 %         Temperature error (relative to input range), (+/-)       0.02 %         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       • Current, relative to input range, (+/-)         • Current, relative to input range, (+/-)       0.1 %; 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         • error occurred at interference frequency suppression: 50       0.05 %; in the Standard operating mode, 0.1 % in the Fast operating	Encoder	
• for current measurement as 2-wire transducer       Yes         - Burden of 2-wire transmitter, max.       820 Ω; at 24 V input voltage         • for current measurement as 4-wire transducer       Yes         • for resistance measurement with two-wire connection       No         • for resistance measurement with three-wire connection       No         • for resistance measurement with three-wire connection       No         • for resistance measurement with three-wire connection       No         • for resistance measurement with four-wire connection       No         • for resistance measurement with fure-wire conneconnection       No	Connection of signal encoders	
— Burden of 2-wire transmitter, max.       820 Ω; at 24 V input voltage         • for current measurement as 4-wire transducer       Yes         • for resistance measurement with two-wire connection       No         • for resistance measurement with three-wire connection       No         • for resistance measurement with three-wire connection       No         • for resistance measurement with four-wire connection       No         • for status below 0 for (relative to input range), (+/-)       0.02 %         • respecting accuracy       at temperatures below 0 °C, the figures for operating error and temperature error are doubled         • Operational error limit in overall temperature range       • Current, relative to input range, (+/-)       0	<ul> <li>for voltage measurement</li> </ul>	No
• for current measurement as 4-wire transducerYes• for current measurement with two-wire connectionNo• for resistance measurement with three-wire connectionNo• for resistance measurement with four-wire connection0.02 %• temperature error (relative to input range), (+/-)0.02 %• current, relative to input range, (+/-)0.1 %; without HART communication• Basic error inmit (operational limit at 25 °C)0.1 %; without HART communication• current, relative to input range, (+/-)0.05 %; without HART communication• error occurred at interference frequency suppression: 4000.1 %; in the Standard operating mode, 0.55 % in the Fast operating mode• error occurred at interference frequency suppression: 500.0		
• for current measurement as 4-wire transducerYes• for resistance measurement with two-wire connectionNo• for resistance measurement with three-wire connectionNo• for resistance measurement with four-wire connection0.02 %• respective to input range, (+/-)0.05 %• Current, relative to input range, (+/-)0.1 %; without HART communication• Basic error init (operational limit at 25 °C)0.05 %; without HART communication• error occurred at interference frequency suppression: 4000.1 %; in the Standard operating mode, 0.55 % in the Fast operating mode• error occurred at interference frequency suppression: 500.04 %; in the Standard operating mod	<ul> <li>for current measurement as 2-wire transducer</li> </ul>	Yes
• for resistance measurement with two-wire connection • for resistance measurement with three-wire connection • for resistance measurement with four-wire connection NoNoErrors/accuraciesLinearity error (relative to input range), (+/-)0.02 %Crosstalk between the inputs, max80 dBRepeat accuracy in steady state at 25 °C (relative to input range), (+/-)0.02 %note regarding accuracyat temperatures below 0 °C, the figures for operating error and temperature error are doubledOperational error limit in overall temperature range0.1 %; without HART communicationBasic error limit (operational limit at 25 °C)0.05 %; without HART communication• Current, relative to input range, (+/-)0.05 %; without HART communicationInfluence of a HART signal modulated on the input signal in relation to input range0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode Hz• error occurred at interference frequency suppression: 60 Hz0.02 %; in the Standard operating mode, 0.1 % in the Fast operating mode Hz• error occurred at interference frequency suppression: 10 Hz0.02 %; in the Standard operating mode, 0.1 % in the Fast operating mode Hz• error occurred at interference frequency suppression: 10 Hz0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode Hz• error occurred at interference frequency suppression: 10 Hz0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode• error occurred at interference frequency suppression: 10 Hz0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode• error occurred at interf		
• for resistance measurement with three-wire connection       No         • for resistance measurement with four-wire connection       No         Errors/accuracies	— Burden of 2-wire transmitter, max.	820 Ω; at 24 V input voltage
• for resistance measurement with four-wire connection         No           Errors/accuracies           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         -           • Current, relative to input 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         • error occurred at interference frequency suppression: 400           Hz         0.19 %; in the Standard operating mode, 0.55 % in the Fast operating mode           Hz         0.04 %; in the Standard operating mode, 0.09 % in the Fast operating mode           Hz         0.02 %; 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           Hz         0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode           Hz	<ul><li>Burden of 2-wire transmitter, max.</li><li>for current measurement as 4-wire transducer</li></ul>	820 Ω; at 24 V input voltage Yes
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	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> </ul>	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	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with three-wire connection</li> </ul>	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	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with three-wire connection</li> <li>for resistance measurement with four-wire connection</li> </ul>	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	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with three-wire connection</li> <li>for resistance measurement with four-wire connection</li> </ul>	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	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with three-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>Errors/accuracies</li> <li>Linearity error (relative to input range), (+/-)</li> </ul>	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	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with three-wire connection</li> <li>for resistance measurement with four-wire connection</li> </ul> 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	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with three-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>Errors/accuracies</li> <li>Linearity error (relative to input range), (+/-)</li> <li>Temperature error (relative to input range), (+/-)</li> <li>Crosstalk between the inputs, max.</li> </ul>	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 <	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with three-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>Errors/accuracies</li> <li>Linearity error (relative to input range), (+/-)</li> <li>Temperature error (relative to input range), (+/-)</li> <li>Crosstalk between the inputs, max.</li> <li>Repeat accuracy in steady state at 25 °C (relative to input</li> </ul>	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 <	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>Errors/accuracies</li> <li>Linearity error (relative to input range), (+/-)</li> <li>Temperature error (relative to input range), (+/-)</li> <li>Crosstalk between the inputs, max.</li> <li>Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)</li> </ul>	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	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>Errors/accuracies</li> <li>Linearity error (relative to input range), (+/-)</li> <li>Temperature error (relative to input range), (+/-)</li> <li>Crosstalk between the inputs, max.</li> <li>Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)</li> </ul>	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 <	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> </ul> 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
<ul> <li>Current, relative to input range, (+/-)</li> <li>0.05 %; without HART communication</li> <li>Influence of a HART signal modulated on the input signal in relation to input range</li> <li>error occurred at interference frequency suppression: 400 Hz</li> <li>error occurred at interference frequency suppression: 60 Hz</li> <li>error occurred at interference frequency suppression: 50 Hz</li> <li>error occurred at interference frequency suppression: 50 Hz</li> <li>error occurred at interference frequency suppression: 50 Hz</li> <li>error occurred at interference frequency suppression: 10 Hz</li> <li>error occurred at interference (peak value of interference frequency</li> <li>Series mode interference (peak value of interference </li> <li>80 dB; in the Standard operating mode, 40 dB in the Fast operating mode</li> </ul>	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>the resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>the resistance measurement with four-wire connection</li> <li>for resistance</li></ul>	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	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>tor resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>tor resistance measurement (relative to input range), (+/-)</li> <li>tor resistance measurement measurement with four-wire range</li> <li>tor resistance measurement measurement with four-wire range</li> <li>tor resistance measurement measurement measurement measurem</li></ul>	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
<ul> <li>error occurred at interference frequency suppression: 400 Hz</li> <li>error occurred at interference frequency suppression: 60 Hz</li> <li>error occurred at interference frequency suppression: 50 Hz</li> <li>error occurred at interference frequency suppression: 50 Hz</li> <li>error occurred at interference frequency suppression: 10 Hz</li> <li>error occurred at interference frequency suppression: 10 Hz</li> <li>error occurred at interference frequency suppression: 10 Hz</li> <li>occurred at interference (peak value of interference frequency</li> <li>Series mode interference (peak value of interference </li> <li>80 dB; in the Standard operating mode, 40 dB in the Fast operating mode</li> </ul>	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>tor resistance measurement with four-wire connection</li> <li>for resistance measurement (relative to input range, (+/-)</li> <li>note regarding accuracy</li> <li>Operational error limit in overall temperature range         <ul> <li>for relative to input</li></ul></li></ul>	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
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	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance wire four range, (+/-)</li> <li>for regarding accuracy</li> <li>for resistance measurement wire four range, (+/-)</li> <li>Basic error limit (operational limit at 25 °C)</li> <li>fo</li></ul>	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
<ul> <li>error occurred at interference frequency suppression: 60 Hz</li> <li>error occurred at interference frequency suppression: 50 Hz</li> <li>error occurred at interference frequency suppression: 10 Hz</li> <li>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</li> <li>Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency</li> <li>Series mode interference (peak value of interference </li> <li>80 dB; in the Standard operating mode, 40 dB in the Fast operating mode</li> </ul>	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance error (relative to input range, (+/-)</li> <li>for error limit (operational limit at 25 °C)</li> <li>for current, relative to input range, (+/-)</li> <li>Influence of a HART signal modulated on the input signal in relation</li> </ul>	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
<ul> <li>error occurred at interference frequency suppression: 50 Hz</li> <li>error occurred at interference frequency suppression: 10 Hz</li> <li>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</li> </ul>	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance accuracy in steady state at 25 °C (relative to input range, (+/-)</li></ul>	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
<ul> <li>error occurred at interference frequency suppression: 10 Hz</li> <li>0.02 %; in the Standard operating mode, 0.03 % in the Fast operating mode</li> <li>Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency</li> <li>Series mode interference (peak value of interference &lt; 80 dB; in the Standard operating mode, 40 dB in the Fast operating mode</li> </ul>	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance four transe, (+/-)</li> </ul> Influence of a HART signal modulated on the input signal in relation <ul> <li>error occurred at interference frequency suppression: 400</li> <li>Hz</li></ul>	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	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance frequency suppression: fon Hz</li> <li>error occurred at interference frequency suppression: 50</li> </ul>	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	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for resistance frequency suppression: fon Hz</li> <li>error occurred at interference frequency suppression: fon Hz</li> <li>error occurred at interference frequency suppression: fon Hz</li> </ul>	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
	<ul> <li>Burden of 2-wire transmitter, max.</li> <li>for current measurement as 4-wire transducer</li> <li>for resistance measurement with two-wire connection</li> <li>for resistance measurement with four-wire connection</li> <li>for state at 25 °C (relative to input range, (+/-)</li> <li>Basic error limit (operational limit at 25 °C)</li> <li>Current, relative to input range, (+/-)</li> </ul> Influence of a HART signal modulated on the input signal in relation <ul> <li>error occurred at interference frequency suppression: 60</li> <li>Hz</li> <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<></ul>	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			
<ul> <li>Monitoring the supply voltage</li> </ul>	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		
<ul> <li>Monitoring of the supply voltage (PWR-LED)</li> </ul>	Yes; green LED		
Channel status display	Yes; green LED		
<ul> <li>for channel diagnostics</li> </ul>	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		
<ul> <li>between the channels and the power supply of the electronics</li> </ul>	No		
Potential separation channels			
between the channels	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		
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			
<ul> <li>horizontal installation, min.</li> </ul>	-30 °C		
<ul> <li>horizontal installation, max.</li> </ul>	60 °C		
<ul> <li>vertical installation, min.</li> </ul>	-30 °C		
<ul> <li>vertical installation, max.</li> </ul>	40 °C		
Altitude during operation relating to sea level			
<ul> <li>Installation altitude above sea level, max.</li> </ul>	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual		
Dimensions			
Width	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 <sub>2</sub>	<b>Miscellaneous</b>			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						
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