## 6ES7531-7QD00-0AB0



**Data sheet** 



SIMATIC S7-1500 Analog input module AI 4xU/I/RTD/TC ST, 16 bit resolution, Accuracy 0.3%, 4 channels in groups of 4; 2 channels for RTD measurement; Common mode voltage 10 V; Diagnostics; Hardware interrupts; Delivery including push-in front connector, infeed element, shield bracket, and shield terminal

Product type designation   HW functional status   From FS01  From FS01  From FS01  From FS01  V1.0.0  • FW update possible   Product function  • I&M data   No  • I&M data   Product function  • I&M data   Product function	General information	
Firmware version  FV update possible  Product function  I (8M data)  Sischronous mode  Prioritized startup  Measuring range scalable  Adjustment of measuring range  Adjustment of measuring range  Adjustment of measuring range  No  STEP 7 TIA Portal configurable/integrated from version  FROFIBUS from GSD version/GSD revision  PROFIBUS from GSD version/GSD revision  PROFIGUATION  PROFIGUATION  Reparameterization possible in RUN  Reparameterization possible in RUN  Reparameterization possible in RUN  Supply voltage  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limi	Product type designation	AI 4xU/I/RTD/TC ST
FW update possible Yes  Product function  1 8M data Yes; 18M0 to 18M3  1 slochronous mode No Prioritized startup No Measuring range scalable No Adjustment of measuring range No  Engineering with  ■ STEP 7 TIA Portal configurable/integrated from version ■ STEP 7 TIA Portal configurable/integrated from version ■ STEP 7 TIA Portal configurable/integrated from version ■ STEP 7 To nofigurable/integrated from version ■ STEP 7 configurable/integrated from version ■ STEP 7 configurable/integrated from version ■ PROFIBUS from GSD version/GSD revision ■ PROFINET from GSD version/GSD revision ■ PROFINET from GSD version/GSD revision ■ Oversampling ■ No ■ MSI ■ Yes  CIR - Configuration in RUN Reparameterization possible in RUN  Calibration possible in RUN  Yes  Supply voltage  Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC)  permissible range, upper limit (	HW functional status	From FS01
Product function  • I&M data • Ischronous mode • Prioritized startup • Measuring range scalable • Scalable measured values • Adjustment of measuring range • STEP 7 TIA Portal configurable/integrated from version • STEP 7 Tonfigurable/integrated from version • PROFIBUS from GSD version/GSD revision • PROFIBUS from GSD version/GSD revision • PROFINET from GSD version/GSD revision • PROFINET from GSD version/GSD revision • PROFINET from GSD version/GSD revision • PROFIDE from GSD version/GSD revision • V13 / V13.0.2 • V23 / - • PROFIDE from GSD version/GSD revision • V2.3 / - • PROFIDE from GSD version/GSD revision • V2.3 / - • PROFIDE from GSD version/GSD revision • V2.5 FS / - • PROFIDE from GSD version/GSD revision • V2.5 FS / - • PROFIDE from GSD version/GSD revision • V2.6 FS / - • PROFIDE from GSD version/GSD revision • V2.7 V2.1 V2.1 V2.1 V2.1 V2.1 V2.1 V2.1 V2.1	Firmware version	V1.0.0
I I&M data  I Isochronous mode  Prioritized startup  Measuring range scalable  Scalable measured values  Adjustment of measuring range  I I I I I I I I I I I I I I I I I I I	FW update possible	Yes
Isochronous mode     Prioritized startup     Measuring range scalable     Scalable measured values     Adjustment of measuring range     No     Adjustment of measuring range     No     STEP 7 TIA Portal configurable/integrated from version     STEP 7 Ton figurable/integrated from version     STEP 7 configurable/integrated from version     PROFIBUS from GSD version/GSD revision     PROFINET from GSD version/GSD revision     PROFINET from GSD version/GSD revision     PROFINET from GSD version/GSD revision     V2.3 /-  Operating mode     Oversampling     MSI     Yes  CIR - Configuration in RUN  Reparameterization possible in RUN  Reparameterization possible in RUN  Yes  Calibration possible in RUN  Yes  Supply voltage  Rated value (DC)     24 V  permissible range, lower limit (DC)     28.8 V  Reverse polarity protection     Yes  Input current  Current consumption, max.     165 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 available from the backplane bus  O.7 W  Power loss	Product function	
Prioritized startup  Measuring range scalable Scalable measured values Adjustment of measuring range No  Engineering with  STEP 7 TIA Portal configurable/integrated from version STEP 7 configurable/integrated from version FROFIBUS from GSD version/GSD revision PROFIBUS from GSD version/GSD	<ul> <li>I&amp;M data</li> </ul>	Yes; I&M0 to I&M3
Measuring range scalable Scalable measured values Adjustment of measuring range No  Engineering with STEP 7 TIA Portal configurable/integrated from version STEP 7 To configurable/integrated from version STEP 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision PROF	<ul> <li>Isochronous mode</li> </ul>	No
Scalable measured values Adjustment of measuring range Engineering with STEP 7 TIA Portal configurable/integrated from version STEP 7 To Portal configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFIBUS from GSD version/GSD revision PROFINET from GSD revision PROFINET from GSD revision PROFINET from GS	<ul> <li>Prioritized startup</li> </ul>	No
Adjustment of measuring range     Engineering with	<ul> <li>Measuring range scalable</li> </ul>	No
Engineering with  STEP 7 TIA Portal configurable/integrated from version STEP 7 configurated from version V5.5 SP3 /- V1.0 / V5.1 PROFINET from GSD version/GSD revision V2.3 /-  Operating mode Oversampling No MSI Yes  CIR - Configuration in RUN Reparameterization possible in RUN Yes Calibration possible in RUN Yes Supply voltage Rated value (DC) Permissible range, lower limit (DC) 19.2 V Permissible range, upper limit (DC) Permissible range, upper limit (DC) Reverse polarity protection Yes  Input current Current consumption, max. 165 mA  Encoder supply 24 V encoder supply Short-circuit protection On A; Max. 47 mA per channel for a duration < 10 s  Power Power loss	<ul> <li>Scalable measured values</li> </ul>	No
STEP 7 TIA Portal configurable/integrated from version  STEP 7 configurable/integrated from version  PROFIBUS from GSD version/GSD revision  PROFINET from GSD version/GSD revision  V2.3 /-  Operating mode  Oversampling  MS  MS  CIR - Configuration in RUN  Reparameterization possible in RUN  Calibration possible in RUN  Yes  Supply voltage  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Input current  Current consumption, max.  Encoder supply  Short-circuit protection  Output current, max.  Power  Power available from the backplane bus  O.7 W  Power loss	Adjustment of measuring range	No
• STEP 7 configurable/integrated from version • STEP 7 configurable/integrated from version • PROFIBUS from GSD version/GSD revision • PROFINET from GSD version/GSD revision • PROFINET from GSD version/GSD revision  Operating mode • Oversampling • MSI • MSI  CIR - Configuration in RUN  Reparameterization possible in RUN  Yes  Calibration possible in RUN  Yes  Supply voltage  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Yes  Input current  Current consumption, max.  165 mA  Encoder supply  • Short-circuit protection • Yes • Output current, max.  20 mA; Max. 47 mA per channel for a duration < 10 s  Power  Power loss	Engineering with	
PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision  PROFINET from GSD version/GSD revision  Operating mode  Oversampling No MSI  CIR - Configuration in RUN  Reparameterization possible in RUN  Calibration possible in RUN  Yes  Supply voltage  Rated value (DC) Permissible range, lower limit (DC) Permissible range, upper limit		V13 / V13.0.2
PROFINET from GSD version/GSD revision  Operating mode  Oversampling  MSI  Yes  CIR - Configuration in RUN  Reparameterization possible in RUN  Yes  Calibration possible in RUN  Yes  Supply voltage  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Yes  Input current  Current consumption, max.  165 mA  Encoder supply  4 Vencoder supply  Short-circuit protection  Yes  Output current, max.  Power  Power available from the backplane bus  0.7 W  Power loss	<ul> <li>STEP 7 configurable/integrated from version</li> </ul>	V5.5 SP3 / -
Operating mode  Oversampling  MSI  Yes  CiR - Configuration in RUN  Reparameterization possible in RUN  Calibration possible in RUN  Supply voltage  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Input current  Current consumption, max.  165 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 loss	<ul> <li>PROFIBUS from GSD version/GSD revision</li> </ul>	V1.0 / V5.1
<ul> <li>Oversampling</li> <li>MSI</li> <li>Yes</li> </ul> CiR - Configuration in RUN Reparameterization possible in RUN Yes Calibration possible in RUN Yes Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes Input current Current consumption, max. Encoder supply <ul> <li>Short-circuit protection</li> <li>Yes</li> <li>Output current, max.</li> <li>Output current, max.</li> <li>Power</li> </ul> Power loss O.7 W Power loss	PROFINET from GSD version/GSD revision	V2.3 / -
● MSI  CiR - Configuration in RUN  Reparameterization possible in RUN  Calibration possible in RUN  Yes  Supply voltage  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Yes  Input current  Current consumption, max.  165 mA  Encoder supply  4 V encoder supply  ● Short-circuit protection  Yes  ● Output current, max.  Power  Power loss	Operating mode	
CiR - Configuration in RUN  Reparameterization possible in RUN  Yes  Calibration possible in RUN  Yes  Supply voltage  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Yes  Input current  Current consumption, max.  165 mA  Encoder supply  4 V encoder supply  • Short-circuit protection  Yes  • Output current, max.  20 mA; Max. 47 mA per channel for a duration < 10 s  Power  Power loss	<ul> <li>Oversampling</li> </ul>	No
Reparameterization possible in RUN  Calibration possible in RUN  Yes  Supply voltage  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Input current  Current consumption, max.  Encoder supply  24 V encoder supply  24 V encoder supply  • Short-circuit protection  • Output current, max.  Power  Power available from the backplane bus  0.7 W  Power loss	• MSI	Yes
Calibration possible in RUN  Supply voltage  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Yes  Input current  Current consumption, max.  165 mA  Encoder supply  4 V encoder supply  • Short-circuit protection  Yes  • Output current, max.  20 mA; Max. 47 mA per channel for a duration < 10 s  Power  Power available from the backplane bus  0.7 W  Power loss	CiR - Configuration in RUN	
Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Yes  Input current  Current consumption, max.  Encoder supply  24 V encoder supply  9 Short-circuit protection  Output current, max.  Power  Power available from the backplane bus  Power loss	Reparameterization possible in RUN	Yes
Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Yes  Input current  Current consumption, max.  165 mA  Encoder supply  24 V encoder supply  • Short-circuit protection  • Output current, max.  20 mA; Max. 47 mA per channel for a duration < 10 s  Power  Power available from the backplane bus  0.7 W  Power loss	Calibration possible in RUN	Yes
permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Input current  Current consumption, max.  Encoder supply  24 V encoder supply  Short-circuit protection  Output current, max.  Power  Power available from the backplane bus  19.2 V  1	Supply voltage	
permissible range, upper limit (DC)  Reverse polarity protection  Yes  Input current  Current consumption, max.  Encoder supply  24 V encoder supply  • Short-circuit protection • Output current, max.  Power  Power available from the backplane bus  O.7 W  Power loss	Rated value (DC)	24 V
Reverse polarity protection  Input current  Current consumption, max.  Encoder supply  24 V encoder supply  • Short-circuit protection • Output current, max.  Power  Power available from the backplane bus  O.7 W  Yes  0.7 W  Power loss	permissible range, lower limit (DC)	19.2 V
Input current  Current consumption, max.  Encoder supply  24 V encoder supply  • Short-circuit protection • Output current, max.  Power  Power available from the backplane bus  O.7 W  Power loss	permissible range, upper limit (DC)	28.8 V
Current consumption, max.  Encoder supply  24 V encoder supply  • Short-circuit protection  • Output current, max.  Power  Power available from the backplane bus  165 mA  Yes  20 mA; Max. 47 mA per channel for a duration < 10 s  0.7 W  Power loss	Reverse polarity protection	Yes
Encoder supply  24 V encoder supply  Short-circuit protection Output current, max.  Power  Power available from the backplane bus  0.7 W  Power loss	Input current	
24 V encoder supply  Short-circuit protection Output current, max.  Power  Power available from the backplane bus  O.7 W  Power loss	Current consumption, max.	165 mA
<ul> <li>Short-circuit protection</li> <li>Output current, max.</li> <li>Power</li> <li>Power available from the backplane bus</li> <li>Power loss</li> </ul>	Encoder supply	
Output current, max.  20 mA; Max. 47 mA per channel for a duration < 10 s  Power  Power available from the backplane bus  0.7 W  Power loss	24 V encoder supply	
Power available from the backplane bus  O.7 W  Power loss	Short-circuit protection	Yes
Power available from the backplane bus  0.7 W  Power loss	<ul> <li>Output current, max.</li> </ul>	20 mA; Max. 47 mA per channel for a duration < 10 s
Power loss	Power	
	Power available from the backplane bus	0.7 W
Power loss, typ. 2.3 W	Power loss	
	Power loss, typ.	2.3 W

Analog inputs	
Number of analog inputs	4
For current measurement	4
For voltage measurement	4
For resistance/resistance thermometer	2
measurement	
<ul> <li>For thermocouple measurement</li> </ul>	4
permissible input voltage for voltage input (destruction	28.8 V
limit), max.	
permissible input current for current input (destruction	40 mA
limit), max.	450 OL 000 OL 000 OL DIAGO DIGGO ANA OF A 0 000
Constant measurement current for resistance-type transmitter, typ.	150 Ohm, 300 Ohm, 600 Ohm, Pt100, Pt200, Ni100: 1.25 mA; 6 000 Ohm, Pt500, Pt1000, Ni1000, LG-Ni1000: 0.625 mA; PTC: 0.472 mA
Technical unit for temperature measurement adjustable	Yes; °C/°F/K
Analog input with oversampling	No
Standardization of measured values	No
Input ranges (rated values), voltages	110
• 0 to +5 V	No
• 0 to +10 V	No
• 1 V to 5 V	Yes
— Input resistance (1 V to 5 V)	100 kΩ
• -1 V to +1 V	Yes
— Input resistance (-1 V to +1 V)	10 MΩ
- Input resistance (-1 V to +1 V)  • -10 V to +10 V	Yes
	Tes 100 kΩ
<ul><li>— Input resistance (-10 V to +10 V)</li><li>• -2.5 V to +2.5 V</li></ul>	Yes
	10 MΩ
<ul><li>— Input resistance (-2.5 V to +2.5 V)</li><li>• -25 mV to +25 mV</li></ul>	No
• -250 mV to +250 mV	Yes
	10 MΩ
<ul><li>— Input resistance (-250 mV to +250 mV)</li><li>• -5 V to +5 V</li></ul>	Yes
	Tes 100 kΩ
— Input resistance (-5 V to +5 V)	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
• -50 mV to +50 mV	Yes
— Input resistance (-50 mV to +50 mV)	10 ΜΩ
• -500 mV to +500 mV	Yes
— Input resistance (-500 mV to +500 mV)	10 ΜΩ
• -80 mV to +80 mV	Yes
— Input resistance (-80 mV to +80 mV)	10 ΜΩ
Input ranges (rated values), currents  • 0 to 20 mA	Von
	Yes 25 O: Plus approx 42 ohms for overvoltage protection by PTC
<ul><li>Input resistance (0 to 20 mA)</li><li>-20 mA to +20 mA</li></ul>	25 $\Omega$ ; Plus approx. 42 ohms for overvoltage protection by PTC Yes
	Yes 25 $\Omega$ ; Plus approx. 42 ohms for overvoltage protection by PTC
<ul><li>— Input resistance (-20 mA to +20 mA)</li><li>• 4 mA to 20 mA</li></ul>	Yes
	res 25 $\Omega$ ; Plus approx. 42 ohms for overvoltage protection by PTC
— Input resistance (4 mA to 20 mA) Input ranges (rated values), thermocouples	20 32, 1 lub approx. 42 orinib loi overvoltage protection by PTC
Type B	Yes
•	Tes 10 MΩ
— Input resistance (Type B)	No
• Type C	Yes
Type E  Input resistance (Type E)	10 MΩ
— Input resistance (Type E)	Yes
Type J  Input resistance (type I)	Tes 10 MΩ
— Input resistance (type J)	Yes
Type K  Input resistance (Type K)	
— Input resistance (Type K)	10 MΩ
• Type L	No Voe
• Type N	Yes
— Input resistance (Type N)	10 ΜΩ
• Type R	Yes
<ul><li>— Input resistance (Type R)</li><li>• Type S</li></ul>	10 MΩ Yes

Input registance (Type S)	10 ΜΩ
— Input resistance (Type S)	Yes
• Type T	
— Input resistance (Type T)	10 ΜΩ
• Type U	No
Type TXK/TXK(L) to GOST	No
Input ranges (rated values), resistance thermometer  • Cu 10	No
	No
Cu 10 according to GOST	
• Cu 50	No
Cu 50 according to GOST     Cu 100	No
• Cu 100	No
Cu 100 according to GOST	No
• Ni 10	No
Ni 10 according to GOST	No
• Ni 100	Yes; Standard/climate
— Input resistance (Ni 100)	10 ΜΩ
Ni 100 according to GOST	No
• Ni 1000	Yes; Standard/climate
— Input resistance (Ni 1000)	10 ΜΩ
Ni 1000 according to GOST	No
• LG-Ni 1000	Yes; Standard/climate
<ul><li>— Input resistance (LG-Ni 1000)</li></ul>	10 ΜΩ
• Ni 120	No
<ul> <li>Ni 120 according to GOST</li> </ul>	No
• Ni 200	No
<ul> <li>Ni 200 according to GOST</li> </ul>	No
● Ni 500	No
<ul> <li>Ni 500 according to GOST</li> </ul>	No
● Pt 10	No
<ul> <li>Pt 10 according to GOST</li> </ul>	No
● Pt 50	No
<ul> <li>Pt 50 according to GOST</li> </ul>	No
• Pt 100	Yes; Standard/climate
— Input resistance (Pt 100)	10 ΜΩ
<ul> <li>Pt 100 according to GOST</li> </ul>	No
• Pt 1000	Yes; Standard/climate
— Input resistance (Pt 1000)	10 ΜΩ
<ul> <li>Pt 1000 according to GOST</li> </ul>	No
• Pt 200	Yes; Standard/climate
— Input resistance (Pt 200)	10 ΜΩ
<ul> <li>Pt 200 according to GOST</li> </ul>	No
• Pt 500	Yes; Standard/climate
— Input resistance (Pt 500)	10 ΜΩ
Pt 500 according to GOST	No
Input ranges (rated values), resistors	
• 0 to 150 ohms	Yes
<ul><li>— Input resistance (0 to 150 ohms)</li></ul>	10 ΜΩ
• 0 to 300 ohms	Yes
<ul><li>— Input resistance (0 to 300 ohms)</li></ul>	10 ΜΩ
• 0 to 600 ohms	Yes
<ul><li>— Input resistance (0 to 600 ohms)</li></ul>	10 ΜΩ
• 0 to 3000 ohms	No
• 0 to 6000 ohms	Yes
<ul> <li>Input resistance (0 to 6000 ohms)</li> </ul>	10 ΜΩ
• PTC	Yes
— Input resistance (PTC)	10 ΜΩ
Thermocouple (TC)	
Temperature compensation	
— parameterizable	Yes
internal temperature compensation	Yes
- F	

<ul> <li>external temperature compensation via RTD</li> </ul>	Yes
<ul> <li>Compensation for 0 °C reference point</li> </ul>	Yes; fixed value can be set
temperature  — Reference channel of the module	No
Cable length	140
• shielded, max.	800 m; for U/I, 200 m for R/RTD, 50 m for TC
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	16 bit
<ul> <li>Integration time, parameterizable</li> </ul>	Yes
<ul><li>Integration time (ms)</li></ul>	2,5 / 16,67 / 20 / 100 ms
<ul> <li>Basic conversion time, including integration time (ms)</li> </ul>	9 / 23 / 27 / 107 ms
<ul> <li>additional conversion time for wire-break monitoring</li> </ul>	9 ms (to be considered in R/RTD/TC measurement)
<ul> <li>additional conversion time for resistance measurement</li> </ul>	150 ohm, 300 ohm, 600 ohm, Pt100, Pt200, Ni100: 2 ms, 6000 ohm, Pt500, Pt1000, Ni1000, LG-Ni1000, PTC: 4 ms
<ul> <li>Interference voltage suppression for interference frequency f1 in Hz</li> </ul>	400 / 60 / 50 / 10
Time for offset calibration (per module)	Basic conversion time of the slowest channel
Smoothing of measured values	
parameterizable	Yes
Step: None	Yes
• Step: low	Yes
Step: Medium	Yes
Step: High	Yes
Encoder Connection of signal anadors	
Connection of signal encoders	V
• for voltage measurement	Yes Yes
for current measurement as 2-wire transducer  Burden of 2 wire transmitter, may	820 Ω
— Burden of 2-wire transmitter, max.	Yes
for current measurement as 4-wire transducer     for registered measurement with two wire	
for resistance measurement with two-wire connection	Yes; Only for PTC
for resistance measurement with three-wire connection	Yes; All measuring ranges except PTC; internal compensation of the cable resistances
for resistance measurement with four-wire connection	Yes; All measuring ranges except PTC
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.02 %
Temperature error (relative to input range), (+/-)	0.005 %/K; With TC type T 0.02 ± % / K
Crosstalk between the inputs, max.  Repeat accuracy in steady state at 25 °C (relative to input	-80 dB 0.02 %
range), (+/-)	10.80
Temperature error of internal compensation	±6 °C
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	0.0.04
Voltage, relative to input range, (+/-)	0.3 %
Current, relative to input range, (+/-)     Designation of relative to input range, (+/-)	0.3 %
Resistance, relative to input range, (+/-)      Resistance the research relative to input range (+/-)	0.3 %
<ul> <li>Resistance thermometer, relative to input range, (+/-)</li> </ul>	0.3 %; Ptxxx standard: ±1.5 K, Ptxxx climate: ±0.5 K, Nixxx standard: ±0.5 K, Nixxx climate: ±0.3 K
Thermocouple, relative to input range, (+/-)	0.3 %; Type B: > 600 °C ±4.6 K, type E: > -200 °C ±1.5 K, type J: > -210 °C ±1.9 K, type K: > -200 °C ±2.4 K, type N: > -200 °C ±2.9 K, type R: > 0 °C ±4.7 K, type S: > 0 °C ±4.6 K, type T: > -200 °C ±2.4 K
Basic error limit (operational limit at 25 °C)	
<ul> <li>Voltage, relative to input range, (+/-)</li> </ul>	0.1 %
<ul> <li>Current, relative to input range, (+/-)</li> </ul>	0.1 %
<ul> <li>Resistance, relative to input range, (+/-)</li> </ul>	0.1 %
<ul> <li>Resistance thermometer, relative to input range, (+/-)</li> </ul>	0.1 %; Ptxxx standard: ±0.7 K, Ptxxx climate: ±0.2 K, Nixxx standard: ±0.3 K, Nixxx climate: ±0.15 K
• Thermocouple, relative to input range, (+/-)	0.1 %; Type B: $>$ 600 °C $\pm$ 1.7 K, type E: $>$ -200 °C $\pm$ 0.7 K, type J: $>$ -210

0 °C  $\pm$ 1.9 K, type S: > 0 °C  $\pm$ 1.9 K, type T: > -200 °C  $\pm$ 0.8 K Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency • Series mode interference (peak value of 40 dB interference < rated value of input range), min. 10 V · Common mode voltage, max. • Common mode interference, min. 60 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 Wire-break Yes; Only for 1 to 5 V, 4 to 20 mA, TC, R, and RTD Overflow/underflow Diagnostics indication LED • RUN LED Yes; green LED ERROR LED Yes: red LED • Monitoring of the supply voltage (PWR-LED) Yes; green LED Channel status display Yes: green LED • for channel diagnostics Yes: red LED • for module diagnostics Yes; red LED **Potential separation** Potential separation channels • between the channels No • between the channels, in groups of 4 • between the channels and backplane bus Yes • between the channels and the power supply of the Yes electronics Permissible potential difference between the inputs (UCM) 20 V DC Between the inputs and MANA (UCM) 10 V DC Isolation Isolation tested with 707 V DC (type test) **Ambient conditions** Ambient temperature during operation -25 °C; From FS03 · horizontal installation, min. · horizontal installation, max. 60 °C · vertical installation, min. -25 °C; From FS03 · 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 25 mm Height 147 mm Depth 129 mm Weights Weight, approx. 210 g Other Note: Supplied incl. 40-pole push-in front connectors. Additional basic error and noise for integration time = 2.5 ms: Voltage: ±250 mV (±0.02%), ±80 mV (±0.05%), ±50 mV (±0.05%); resistance: 150 Ohms (±0.02%); resistance thermometer: Pt100 climate: ±0.08 K, Ni100 climate: ±0.08 K; thermoelement: Type B, R, S: ±3 K, type E, J, K, N, T: ±1 K

 $^{\circ}$ C ±0.8 K, type K: > -200  $^{\circ}$ C ±1.2 K, type N: > -200  $^{\circ}$ C ±1.2 K, type R: >

last modified:

4/28/2022