SIEMENS

Data sheet

6ES7313-5BF03-0AB0



Figuresimilar

Spare part SIMATIC S7-300, CPU 313C, Compact CPU with MPI, 24 DI/16 DO, 4 AI, 2 AO, 1 Pt100, 3 high-speed counters (30 kHz), Integr. power supply 24 V DC, work memory 64 KB, Front connector (2x 40-pole) and Micro Memory Card required

General information	
HW functional status	01
Firmware version	V2.6
Engineering with	
 Programming package 	STEP 7 V5.3 SP2 or higher with HW update
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines (recommendation)	Miniature circuit breaker, type C; min. 2 A; miniature circuit breaker type B, min. 4 A
Load voltage L+	
Rated value (DC)	24 V
 permissible range, lower limit (DC) 	20.4 V
 permissible range, upper limit (DC) 	28.8 V
Digital inputs	
— Rated value (DC)	24 V
 Reverse polarity protection 	Yes
Digital outputs	
— Rated value (DC)	24 V
 Reverse polarity protection 	No
Analog outputs	
— Rated value (DC)	24 V
 Reverse polarity protection 	Yes
Input current	
Current consumption (rated value)	700 mA
Current consumption (in no-load operation), typ.	150 mA
Inrush current, typ.	11 A
l²t	0.7 A ² ·s
Digital inputs	
 from load voltage L+ (without load), max. 	70 mA
Digital outputs	
 from load voltage L+, max. 	100 mA
Power loss	
Power loss, typ.	14 W
Memory	
Work memory	
• integrated	64 kbyte

• expandable	No
Load memory	
Plug-in (MMC)	Yes
• Plug-in (MMC), max.	8 Mbyte
Data management on MMC (after last	10 y
programming), min.	
Backup	
• present	Yes; Guaranteed by MMC (maintenance-free)
without battery	Yes; Program and data
CPU processing times	
for bit operations, typ.	0.1 μs
for bit operations, max.	0.2 μs
for word operations, typ.	0.2 μs
for fixed point arithmetic, typ.	2 µs
for floating point arithmetic, typ.	3 µs
CPU-blocks	
Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	
Number, max.	511; Number range: 1 to 511
• Size, max.	16 kbyte
FB	
Number, max.	1 024; Number range: 0 to 2047
• Size, max.	16 kbyte
FC	
Number, max.	1 024; Number range: 0 to 2047
• Size, max.	16 kbyte
OB	
• Size, max.	16 kbyte
 Number of free cycle OBs 	1; OB 1
 Number of time alarm OBs 	1; OB 10
 Number of delay alarm OBs 	1; OB 20
 Number of cyclic interrupt OBs 	1; OB 35
 Number of process alarm OBs 	1; OB 40
 Number of startup OBs 	1; OB 100
 Number of asynchronous error OBs 	4; OB 80, 82, 85, 87
Number of synchronous error OBs	2; OB 121, 122
Nesting depth	
 per priority class 	8
additional within an error OB	4
Counters, timers and their retentivity	
S7 counter	
Number	256
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	8
Counting range	
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 times	050
Number	256
Retentivity	V
— adjustable	Yes
— lower limit	0

	255
— upper limit	255
— preset	No retentivity
Time range	40
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	64 kbyte
Flag	
Size, max.	256 byte
 Retentivity available 	Yes; MB 0 to MB 255
 Retentivity preset 	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
Data blocks	
 Retentivity adjustable 	Yes; via non-retain property on DB
 Retentivity preset 	Yes
Local data	
per priority class, max.	510 byte
Address area	
I/O address area	
• Inputs	1 kbyte
• Outputs	1 kbyte
Process image	1.00,00
• Inputs	128 byte
• Outputs	128 byte
Default addresses of the integrated channels	120 0910
Default addresses of the integrated charmers Digital inputs	124.0 to 126.7
— Digital niputs — Digital outputs	124.0 to 125.7
— Analog inputs	752 to 761
	752 to 761
— Analog outputs	732 to 733
Digital channels	1 016
• Inputs	
— of which central	1 016
• Outputs	1 008
— of which central	1 008
Analog channels	
• Inputs	253
— of which central	253
Outputs	250
— of which central	250
Hardware configuration	
Number of expansion units, max.	3
Number of DP masters	
• integrated	none
• via CP	4
Number of operable FMs and CPs (recommended)	
• FM	8
• CP, PtP	8
• CP, LAN	6
Rack	
• Racks, max.	4
Modules per rack, max.	8; In rack 3 max. 7
Time of day	
Clock	
Hardware clock (real-time)	Yes
 retentive and synchronizable 	Yes

Backup time	6 wk; At 40 °C ambient temperature
Deviation per day, max.	10 s
Operating hours counter	
Number	1
Number/Number range	0
Range of values	0 to 2^31 hours (when using SFC 101)
Granularity	1 h
• retentive	Yes; Must be restarted at each restart
Clock synchronization	100, must be restarted at each restart
• supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
• in AS, master	Yes
Digital inputs	165
Number of digital inputs	24
	12
of which inputs usable for technological functions integrated channels (DI)	24
integrated channels (DI)	
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Number of simultaneously controllable inputs	
horizontal installation	
— up to 40 °C, max.	24
— up to 60 °C, max.	12
vertical installation	
— up to 40 °C, max.	12
Input voltage	
Rated value (DC)	24 V
• for signal "0"	-3 to +5V
• for signal "1"	+15 to +30 V
Input current	10.00
• for signal "1", typ.	9 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; 0.1 / 0.3 / 3 / 15 ms
— Rated value	3 ms
for technological functions	0 1110
— at "0" to "1", max.	16 µs
Cable length	10 μ3
shielded, max.	1 000 m; 100 m for technological functions
unshielded, max. unshielded, max.	600 m; for technological functions: No
for technological functions	ooo m, for technological fullctions. No
	100 m
— shielded, max.— unshielded, max.	not allowed
·	not anowed
Digital outputs	40
Number of digital outputs	16
of which high-speed outputs	4
integrated channels (DO)	16
Short-circuit protection	Yes; Clocked electronically
Response threshold, typ.	1 A
Limitation of inductive shutdown voltage to	L+ (-48 V)
Controlling a digital input	Yes
Switching capacity of the outputs	
• on lamp load, max.	5 W
Load resistance range	
• lower limit	48 Ω
upper limit	4 kΩ
Output voltage	
● for signal "1", min.	L+ (-0.8 V)
Output current	
for signal "1" rated value	500 mA

• for signal "1" permissible range, min.	5 mA
• for signal "1" permissible range, max.	0.6 A
• for signal "1" minimum load current	5 mA
for signal "0" residual current, max.	0.5 mA
Parallel switching of two outputs	N-
• for uprating	No V
• for redundant control of a load	Yes
Switching frequency	400 11
with resistive load, max.	100 Hz
with inductive load, max.	0.5 Hz
• on lamp load, max.	100 Hz
of the pulse outputs, with resistive load, max. Tatal average of the pulse outputs (and present).	2.5 kHz
Total current of the outputs (per group)	
horizontal installation	2.4
— up to 40 °C, max.	3 A 2 A
— up to 60 °C, max.	2 A
vertical installation	0.4
— up to 40 °C, max.	2 A
Cable length	1 000 m
shielded, max. unshielded, max.	
• unshielded, max.	600 m
Analog inputs	
Number of analog inputs	
For voltage/current measurement	4
 For resistance/resistance thermometer measurement 	1
integrated channels (AI)	4+1
permissible input voltage for current input (destruction	5 V; Permanent
limit), max.	
permissible input voltage for voltage input (destruction	30 V; Permanent
limit), max. permissible input current for voltage input (destruction	0.5 mA; Permanent
limit), max.	
permissible input current for current input (destruction limit), max.	50 mA; Permanent
Electrical input frequency, max.	400 Hz
No-load voltage for resistance-type transmitter, typ.	2.5 V
Constant measurement current for resistance-type transmitter, typ.	1.8 to 3.3 mA
Technical unit for temperature measurement adjustable	Yes; Degrees Celsius / degrees Fahrenheit / Kelvin
Input ranges	
Current	Yes
Resistance thermometer	Yes; Pt 100 / 10 MΩ
Resistance	Yes
Input ranges (rated values), voltages	
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	100 kΩ
Input ranges (rated values), currents	
• 0 to 20 mA	Yes
— Input resistance (0 to 20 mA)	100 Ω
• -20 mA to +20 mA	Yes
— Input resistance (-20 mA to +20 mA)	100 Ω
• 4 mA to 20 mA	Yes
— Input resistance (4 mA to 20 mA)	100 Ω
Input ranges (rated values), resistance thermometer	Voo
• Pt 100	Yes
— Input resistance (Pt 100)	10 ΜΩ
Input ranges (rated values), resistors	Von
 0 to 600 ohms 	Yes
- Input resistance (0 to 600 ohms)	10 MO
— Input resistance (0 to 600 ohms) Thermocouple (TC)	10 ΜΩ

- parameterizable	Temperature compensation	
Characterisate innearrazation	· · ·	No
Per parameterizable Prisonance		
- shielded, max. 100 m Antibor outputs Number of analog outputs 2 Vollage output, short-circuit protection 2 Vollage output, short-circuit protection 3 Vollage output, short-circuit protection 4 Ves	parameterizable	Yes; by software
ankelded, max. Number of analog outputs Voltage output, short-circuit protection Ves Voltage output, short-circuit current, max. 55 mA Current output, no-load voltage, max. 17 V Output ranges, voltage • 0 to 10 V Ves • 10 V to +10 V Ves • 10 V to 10 V Ves • 10 V to 10 V Ves • 20 mA Pes • 20 mA Pes • 20 mA De 20 mA • 20 mA Pes • 6 for voltage output four-wire connection • for voltage output, and the voltage of output) • with voltage output, smax. • with current outputs, inductive load, max. • with current outputs inductive load, max. • with current outputs towards MANA • Current, max. Cabel length • shelded, max. Analog value generation for the inputs • resolution with overrange (bit including sign), max. • Integration and conversion lime/resolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion lime/resolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion lime/resolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion lime/resolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion lime/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • for current measurement as 4-wire transducer • for voltage measurement • for voltage measurement • for voltage measurement • for for current measurement as 4-wire transducer • for for current measurement as 4-wire transducer • for for current measurement as 4-wire transducer • for fo	— for resistance thermometer	Pt 100
Analog outputs Number of analog outputs 12 Voltage output, short-circuit current, max. 55 mA Current output, ne-load voltage, max. Output ranges, voltage • 0 to 10 V • 10 V to 10 V • 10 V to 10 V • 10 V to 20 mA • 2 mA to 20 mA • 4 mA to 20 mA • 4 mA to 20 mA • 10 rovidage output two-wire connection • for voltage output four-wire connection • for outrant output, bun-wire connection • for outrant output two-wire connection • for outrage output four-wire connection • for outrage output four-wire connection • for outrage output tou-wire connection • for outrage output tou-wire connection • for outrage output tou-wire connection • for outrage output stou-wire connection • with voltage output, min. • with voltage output, min. • with current outputs, max. • outputs, max. • outputs, max. • outputs, max. • outputs outputs, max. • outputs outputs, max. • outputs outputs, max. • outputs outputs, max. • outputs, max. • outputs, max. • outputs outputs, max. • outputs, max. • outputs outputs, max. • outputs, max.	Cable length	
Number of analog outputs integrated channels (AO) Voltage output, short-circuit current, max. Voltage output, short-circuit current, max. Current output, ne-load voltage, max. 17 V Cutput ranges, voltage. • 0 to 10 V • 10 V to +10 V • 10 V to +10 V • 10 20 mA • 20 m A to 20 mA • 20 m A to 20 mA • 20 m A to 20 mA • 4 m At 02 mA • 7 ves • for voltage output four-wire connection • for voltage output four-wire connection • for voltage output four-wire connection • for voltage output, short-circuit current outputs wo wire connection • for voltage outputs, min. • with voltage outputs, min. • with current outputs, min. • with current outputs, max. • with current outputs, max. • with current outputs, max. • with current outputs to wards MANA • Voltage outputs, min. • Voltage as the outputs towards MANA • Current, max. Cable length • shelded, max. Analog value generation for the inputs Resourcement principle • Integration and conversion time/resolution per channel • Resolution with overange (bit including sign), max. • integration and conversion time/resolution per channel • Resolution with overange (bit including sign), max. • integration and conversion time/resolution per channel • Resolution with overange (bit including sign), max. • integration and conversion time/resolution per channel • Resolution with overange (bit including sign), max. • integration and conversion time/resolution per channel • Resolution with overange (bit including sign), max. • conversion time (per channel) **Resolution with overange (bit including sign), max. • for crassitive load • for conductive load • for ordicative load • for forductive load • for ordicative load • for forductive load • for fordu	• shielded, max.	100 m
Integrated channels (AO) Voltage output, short-circuit protection Ves Voltage output, short-circuit current, max. SS mA Current output, no-load voltage, max. 17 V Output ranges, voltage • 0 to 10 V Yes • 10 to 10 V Yes • 10 to 20 mA • 20 mA • 4 mA to 20 mA Yes • 4 mA to 20 mA • for voltage output two-wire connection • for voltage output four-wire connection • for voltage output four-wire connection • for voltage output signature, and the signature of the line resistances • for voltage output signature, and the signature of the line resistances • for voltage output, max. • with current output two-wire connection • with voltage outputs, capacitive load, max. • with current outputs, inductive load, max. • with current outputs, inductive load, max. • with current outputs is worth outputs worth outputs worth outputs worth outputs worth outputs. • Voltages at the outputs towards MANA • Current, max. Cabble length • shelded, max. Analog value generation for the inputs Measurement principle • Resolution with overrange (bit including sign), max. • Integration and conversion timeressolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion timeressolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion timeressolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion timeressolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion timeressolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion timeressolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion timeressolution per channel • Resolution with overrange (bit including sign), max. • To conversion time (per channel) • Resolution with overrange (bit including sign), max. • To conversion time (per channel) • Resolution with overrange (bit	Analog outputs	
integrated channels (AO) 2 Voltage output, short-circuit current, max. 55 mA Current output, no-load voltage, max. 17 V Output ranges, voltage	Number of analog outputs	2
Vottage output, short-foruit current, max. Current output, no local voltage, max. Output ranges, voltage • 0 to 10 V Yes • 10 V to +10 V Yes Output ranges, current • 0 to 20 mA Yes • 20 mA to -20 mA Yes • 20 mA to -20 mA Yes • 4 mA to 20 mA Yes • 6 ro voltage output two-wire connection No for voltage output two-wire connection No for current output two-wire connection No voltage output two-wire connection No voltage output tow-wire connection No voltage output, capacitive load, max. • of ro voltage outputs, capacitive load, max. • with voltage outputs, capacitive load, max. • with outputs, capacitive load, max. • with current outputs, inductive load, max. • voltages at the outputs towards MANA 16 V; Permanent • Voltages at the outputs towards MANA 16 V; Permanent • Current, max. Cable length • shelded, max, 200 m Analog value generation for the inputs Measurement principle • Resolution with overrange (bit including sign), max. • Integration sime, parameterizable • Resolution with overrange (bit including sign), max. • Integration ime, parameterizable • Resolution with overrange (bit including sign), max. • Integration dime, parameterizable • Resolution with overrange (bit including sign), max. • Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration ime, parameterizable • Resolution with overrange (bit including sign), max. • Integration dime, parameterizable • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • For current measurement a	integrated channels (AO)	2
Current output, no-load voltage, max. Output ranges, voltage • 0 to 10 V • 10 V to +10 V • 10 to 20 mA • 20 mA to +20 mA • 20 mA to +20 mA • 4 m A to 20 mA • for voltage output two-wire connection • for voltage output two-wire connection • for voltage output s, min. • for current output, smax. • of or voltage outputs, min. • with current outputs, max. • with current outputs, inductive load, max. • vith current outputs words MANA • with current outputs words MANA • Voltages at the outputs towards MANA • Voltages at the outputs towards MANA • Voltages at the outputs towards MANA • So mA; Permanent • Current, max. Cabile length • shelded, max. Analog value generation for the imputs Measurement principle • Resolution with overrange (bit including sign), max. • Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • (or or resistive load • for or gapactive load • for or gapactive load • for or gapactive load • fo	Voltage output, short-circuit protection	Yes
Output ranges, voltage • 0 to 10 V • -10 V to +10 V Ves • -10 V to +10 V Quput ranges, current • 0 to 20 mA • 20 mA to +20 mA • 4 mA to 20 mA • 4 mA to 20 mA • 6 ror voltage output two-wire connection • for voltage output two-wire connection • for voltage output two-wire connection • for voltage output two-wire connection • for voltage output service connection • for voltage outputs, capacitive load, max. • of this current outputs, max. • with current outputs wards MANA • Voltage as at the outputs twords MANA • Current, max. Cable length • shelded, max. Analog vatue generation for the inputs Measurement principle Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Dassic execution time of the module (all channels released) Analog vatue generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time of the module (all channels released) Analog vatue generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Conversion time (per channel) • Time constant of the input filter • Dasic execution time of the module (all channels released) Analog vatue generation for the outputs Conversion time (per channel) • Time constant of the input filter • Or or current measurement as 2-wire transducer • for or voltage measurement • for current measurement as 2-wire transducer • for ovoltage measurement as 2-wire transducer • for current measurement as 4-wire transducer • for current measurement as 4-wir	Voltage output, short-circuit current, max.	55 mA
• 10 to 10 V • 10 V to 10 V • 10 V to 20 mA • 20 m A Ves • 20 m A Ves • 20 m A Ves • 4 m λ to 20 m A • 4 m λ to 20 m A • 6 ro voltage output two-wire connection • 6 ro voltage output four-wire connection • 7 ves • 6 ro voltage output two-wire connection • 7 ves • 6 ro voltage output service connection • 7 ves • 10 ve	Current output, no-load voltage, max.	17 V
- 10 V to +10 V Yes Output ranges, current 0 to 20 mA Yes - 20 mA to +20 mA Yes 4 m A to 20 mA Yes Connection of actuators • for voltage output two-wire connection No • for current output we-wire connection Yes: Without compensation of the line resistances • for voltage output two-wire connection No • for current output we-wire connection Yes Load impedance (in rated range of output) • with voltage outputs, capacitive load, max. 0.1 μF • with voltage outputs, min. 1 kΩ • with voltage outputs, max. 300 Ω • with current outputs, max. 300 Ω • with current outputs, max. 50 πA: Permanent Cable length • Shielded, max. 200 m Analog value generation for the inputs Measurement principle Integration and conversion time, parameterizable Yes; 2,5 / 16,6 / 20 ms • Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. 12 bit • Time constant of the input filter 0.38 ms • Basic execution time of the module (all channels released) • Time constant of the input filter 0.38 ms • Basic execution time of the module (all channels released) • For resistive load 0.6 ms • for resistive load 1 ms • for outputs load • for rogacitive load • for for current measurement as 2-wire transducer Yes; without compensation of the line resistances	Output ranges, voltage	
Output ranges, current • 0 to 20 mA • 20 mA to +20 mA • 20 mA to +20 mA • 4 mA to 20 mA • for voltage output two-wire connection • for voltage output four-wire connection • for voltage output, capacitive load, max • for voltage output, sim. • with voltage outputs, min. • with voltage outputs, apacitive load, max. • with current outputs, inductive load, max. • with current outputs, max. • voltage sat the outputs towards MANA • Current, max. Destruction limits against externally applied voltages and currents • Voltages at the outputs towards MANA • Current, max. • So mA; Permanent Cable length • shielded, max. Analog value generation for the inputs Measurement principle integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • integration time, parameterizable • interference voltage suppression for interference frequency f1 in Hz • Time constant of the input filter • Basic execution time of the module (all channels released) Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • In ms 12 bit	• 0 to 10 V	Yes
• 0 to 20 mA • -20 mA to +20 mA • -20 mA to +20 mA • -4 m A to 20 mA • -4 m A to 2	• -10 V to +10 V	Yes
- 20 mA to +20 mA - 4 mA to 20 mA - Yes Connection of actuators - for voltage output four-wire connection - for voltage output four-wire connection - for voltage output four-wire connection - for current output two-wire connection - for current output two-wire connection - for current output four-wire connection - with voltage outputs, min with voltage outputs, capacitive load, max with current outputs, max voltages at the outputs towards MANA - for N; Permanent Cable length - shielded, max. Cable length - shielded, max. Analog value generation for the inputs Measurement principle - Resolution with overange (bit including sign), max Integration time, parameterizable - Intergretone voltage suppression for interference frequency ff in Hz - Time constant of the input filter - Basic execution time of the module (all channels released) - Integration and conversion time/resolution per channel - Resolution with overange (bit including sign), max Integration and conversion time/resolution per channel - Resolution with overange (bit including sign), max Integration and conversion time/resolution per channel - Resolution with overange (bit including sign), max Integration and conversion time/resolution per channel - Resolution with overange (bit including sign), max Integration and conversion time/resolution per channel - Resolution with overange (bit including sign), max Integration and conversion time/resolution per channel - For current measurement as 2-wire transducer - for resistance measurement - for current measurement as 2-wire transducer - for current measurement as 4-wire transd	Output ranges, current	
Connection of actuators • for voltage output two-wire connection • for voltage output two-wire connection • for voltage output two-wire connection • for current output two-wire connection • for current output two-wire connection • with voltage output four-wire connection • for current output two-wire connection • with voltage output four-wire connection • with voltage output four-wire connection • with voltage output four-wire connection • with voltage outputs, min. • with current outputs, max. • with current outputs, max. • with current outputs, max. • with current outputs is max. • voltages at the outputs two wards MANA • vith current outputs two wards MANA • Current, max. • Voltages at the outputs towards MANA • Current, max. • So ma; Permanent Cable length • shielded, max. Actual value encryption (successive approximation) integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time parameterizable • Interference voltage suppression for interference frequency if in hz • Time constant of the input filter • Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • In ms • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Time constant of the input filter • Resolution with overrange (bit including sign), max. • Time constant of the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Time constant of the input filter • Resolution with overrange (bit including sign), max. • Time constant of the input filter • Resolution with overrange (bit including sign), max. • Time constant of the input filter • Resolution with overrange (bit including sign), max. • Time constant of the input filter • Resolution with overrange (bit including sign), max. • Time constant of the input filter • Resoluti	• 0 to 20 mA	Yes
For voltage output two-wire connection	• -20 mA to +20 mA	Yes
• for voltage output two-wire connection • for voltage output four-wire connection No • for current output two-wire connection No • for current output two-wire connection Pes Load impedance (in rated range of output) • with voltage outputs, min. • with voltage outputs, min. • with voltage outputs, capacitive load, max. • with current outputs, inductive load, max. • voltages at the outputs towards MANA • Current, max. • Voltages at the outputs towards MANA • Current, max. • So mA; Permanent Cable length • shielded, max. Analog value generation for the inputs Measurement principle Actual value encryption (successive approximation) Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Interference voltage suppression for interference frequency f1 in Hz • Time constant of the input filter • Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • Resolution with overrange (bit including sign), max. • Conversion time (per channel) • For capacitive load • for resistive load • for inductive load • for original encoders • for ovoltage measurement • for overnet measurement as 2-wire transducer • for overnet measurement as 4-wire transducer • for current measurement	• 4 mA to 20 mA	Yes
• for voltage output four-wire connection • for current output two-wire connection • for current output two-wire connection • for current output two-wire connection • with voltage outputs, min. • with voltage outputs, max. • with current outputs, max. • with current outputs, max. • with current outputs, inductive load, max. • outputs significant outputs towards MANA • Current, max. • Current, max. • Current, max. • Conversion time of the inputs Measurement principle • Actual value encryption (successive approximation) Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Interference voltage suppression for interference frequency f1 in Hz • Time constant of the input filter • Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • (analog value generation for the outputs) Integration and conversion time (per channel) • Resolution with overrange (bit including sign), max. • (analog value generation for the outputs) Integration and conversion time (per channel) • (analog value generation for the outputs) Integration and conversion time (per channel) • (analog value generation for the outputs) Integration and conversion time (per channel) • (analog value generation for the outputs) For conversion time (per channel) • (analog value generation for the outputs) For conversion time (per channel) • (analog value generation for the outputs) For conversion time (per channel) • (analog value generation for the outputs) For conversion time (per channel) • (analog value generation for the outputs) For conversion time (per channel) • (analog value generation for the outputs) For conversi	Connection of actuators	
• for current output two-wire connection Load impedance (in rated range of output) • with voltage outputs, min. • with voltage outputs, capacitive load, max. • with current outputs, max. • with current outputs, inductive load, max. • Voltages at the outputs towards MANA • Current, max. • Voltages at the outputs towards MANA • Current, max. • So mA; Permanent • Shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Interference voltage suppression for interference frequency f1 in Hz • Time constant of the input filter • Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • In the forein time of the module (all channels are leased) Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) Settling time • for resistive load • for inductive load • for inductive load • for inductive load • for output measurement • for current measurement as 2-wire transducer • for current measurement as 2-wire transducer • for current measurement as 2-wire transducer • for current measurement as 4-wire transducer • for current measurement as 4-wire transducer • for resistance measurement with two-wire • for resistance measurement with two-wire • for resistance measurement with two-wire	 for voltage output two-wire connection 	·
with voltage outputs, min. 1 kΩ with voltage outputs, capacitive load, max. 0.1 μF with current outputs, max. 300 Ω with current outputs, inductive load, max. 0.1 μF with current outputs, inductive load, max. 0.1 mH Destruction limits against externally applied voltages and currents Voltages at the outputs towards MANA 16 V; Permanent Voltages at the outputs towards MANA 16 V; Permanent Voltages at the outputs towards MANA 16 V; Permanent Voltages at the outputs towards MANA 16 V; Permanent Voltages at the outputs towards MANA Vermanent Verman	 for voltage output four-wire connection 	No
 with voltage outputs, min. with voltage outputs, capacitive load, max. with current outputs, max. with current outputs, inductive load, max. 0.1 mH Destruction limits against externally applied voltages and currents Voltages at the outputs towards MANA Current, max. Cable length shielded, max. Analog value generation for the inputs Measurement principle Actual value encryption (successive approximation) Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable Integration time, parameterizable Integration time, parameterizable Integration time of the module (all channels released) 1 ms Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Entegration and conversion time/resolution per channels Resolution with overrange (bit including sign), max. Conversion time (per channel) In ms Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) In ms Settling time for resistive load for resistive load for resistive load for routing measurement Yes for voltage measurement For voltage measurement as 4-wire transducer for current measurement with two-wire Yes; Without compensation of the line resistances 		Yes
with voltage outputs, capacitive load, max. with current outputs, max. with current outputs, max. with current outputs, max. with current outputs, inductive load, max. Destruction limits against externally applied voltages and currents Voltages at the outputs towards MANA Current, max. So mA; Permanent Cable length shielded, max. Zo0 m Analog value generation for the inputs Measurement principle Resolution with overrange (bit including sign), max. Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable Interference voltage suppression for interference frequency f1 in Hz Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Oconversion time (per channel) Resolution with overrange (bit including sign), max. Conversion time (per channel) Resolution with overrange (bit including sign), max. Conversion time (per channel) Resolution of the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Resolution with overrange (bit including sign), max. Conversion time (per channel) Resolution with overrange (bit including sign), max. Conversion time (per channel) Resolution with overrange (bit including sign), max. Conversion time (per channel) Resolution with overrange (bit including sign), max. Conversion time (per channel) Resolution with overrange (bit including sign), max. Conversion time (per channel) Resolution with overrange (bit including sign), max. Conversion time (per channel) Resolution with overrange (bit including sign), max. Resolution time of the module (all channels in time sig		
 with current outputs, max. with current outputs, inductive load, max. 0.1 mH Destruction limits against externally applied voltages and currents Voltages at the outputs towards MANA Current, max. Cable length shielded, max. 200 m Analog value generation for the inputs Measurement principle Resolution with overrange (bit including sign), max. Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable Integration time, parameterizable Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. 1 ms 1 ms 2 bit 3.8 ms 1 ms 1 ms Conversion time (per channel) 1 ms Settling time for resistive load for capacitive load for or capacitive load for or capacitive load for or voltage measurement for voltage measurement for voltage measurement as 2-wire transducer for or current measurement as 2-wire transducer for ror current measurement as 4-wire transducer for ror current measurement as 4-wire transducer for ror current measurement with two-wire connection Yes; Without compensation of the line resistances 		
with current outputs, inductive load, max. Destruction limits against externally applied voltages and currents Voltages at the outputs towards MANA Current, max. Cable length shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Interference voltage suppression for interference frequency f1 in Hz Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. In ms Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time for resistive load of or capacitive load for or capacitive load for or voltage measurement for ovoltage measurement for ovoltage measurement for ovoltage measurement as 2-wire transducer for rowal measurement as 4-wire transducer for cresistance measurement as 4-wire transducer for resistance measurement with two-wire for resistance measurement with two-wire for resistance measurement with two-wire for connection		
Destruction limits against externally applied voltages and currents • Voltages at the outputs towards MANA • Current, max. • Current, max. 200 m Analog value generation for the inputs Measurement principle • Resolution with overrange (bit including sign), max. • Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Interference voltage suppression for interference frequency f1 in Hz • Time constant of the input filter • Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) Settling time • for resistive load • for resistive load • for resistive load • for roluctive load • for roluctive load • for olutage measurement as 2-wire transducer • for current measurement as 4-wire transducer • for current measurement as 4-wire transducer • for resistance measurement with two-wire • for current measurement with two-wire • for current measurement with two-wire • for cerisitance measurement with two-wire • for cerisitance measurement with two-wire • for current measurement with two-wire • for seistance measurement with two-wire	• •	
Voltages at the outputs towards MANA Current, max. So mA; Permanent So mA; Permanent Sheidled, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable Integration time, parameterizable Integration time overlage suppression for interference frequency f1 in Hz Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time for resistive load for resistive load for resistive load for redoction of signal encoders for ovoltage measurement as 2-wire transducer for current measurement as 4-wire transducer for current measurement as 4-wire transducer for cresistance measurement with two-wire connection Table V; Permanent Actual value encryption (successive approximation) Integration (successive approximation) Integrati		
Cable length • shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Interference voltage suppression for interference frequency f1 in Hz • Time constant of the input filter • Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Conversion time (per channel) Settling time • for resistive load • for capacitive load • for inductive load • for inductive load • for voltage measurement • for current measurement as 2-wire transducer • for current measurement as 4-wire transducer • for resistance measurement with two-wire connection		
Cable length	-	
Shielded, max. 200 m Analog value generation for the inputs Measurement principle Actual value encryption (successive approximation) Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. 12 bit Integration time, parameterizable Yes; 2,5 / 16,6 / 20 ms Integration time, parameterizable Yes; 2,5 / 16,6 / 20 ms Integration time of the input filter 0.38 ms Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. 12 bit Conversion time (per channel) Settling time of or resistive load 0.6 ms of or inductive load 0.5 ms Encoder Connection of signal encoders of or voltage measurement as 2-wire transducer of or resistance measurement as 4-wire transducer of or resistance measurement with two-wire connection	·	50 mA; Permanent
Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable Integration time of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time for resistive load for capacitive load for capacitive load for inductive load For inductive load For oversion disgnal encoders for voltage measurement For current measurement as 2-wire transducer For resistance measurement with two-wire connection Actual value encryption (successive approximation) 12 bit 10.38 ms 1 ms 1 ms 12 bit 1		000
Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable Integration time, parameterizable Integration time, parameterizable Integration time overlange suppression for interference frequency f1 in Hz Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time for resistive load for capacitive load for capacitive load for inductive load for inductive load for ovoltage measurement for current measurement as 2-wire transducer for resistance measurement with two-wire for resistance measurement with two-wire for resistances Yes; Without compensation of the line resistances	•	200 m
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable Integration time, parameterizable Interference voltage suppression for interference frequency f1 in Hz Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time of or resistive load for capacitive load for capacitive load for convection of signal encoders of or voltage measurement of or current measurement as 2-wire transducer of or current measurement as 4-wire transducer of or resistance measurement with two-wire connection Testing time 12 bit 12 bit 12 bit 13 bit 14 bit 15 bit 16 bit 17 bit 18 bit 19 bit 19 bit 10 bit 10 bit 10 bit 10 bit 10 bit 10 bit 11 bit 12 bit 11 bit 12 bit 12 bit 12 bit 13 bit 14 bit 15 bit 16		
Resolution with overrange (bit including sign), max. Integration time, parameterizable Interference voltage suppression for interference frequency f1 in Hz Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time for resistive load for capacitive load for capacitive load for voltage measurement for voltage measurement for current measurement as 2-wire transducer for current measurement as 4-wire transducer for resistance measurement with two-wire connection 12 bit 12 bit 12 bit 12 bit 13 bit 14 bit 15 bit 16 bit 16 bit 17 bit 18 bit 18 bit 19 bit 10 bit 11 bit 12 bit 12 bit 13 bit 14 bit 15 bit 16 bit 18 bit 1	• •	Actual value encryption (successive approximation)
Integration time, parameterizable Interference voltage suppression for interference frequency f1 in Hz Image: Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time Integration of signal encoders Integration of signal encoders Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. In ms Settling time In ms Settling time In ms For capacitive load In ms In ms In ms For outcive load In ms In ms Frocoder Connection of signal encoders In ms Yes Yes Yes Yes Yes Yes Yes; with external supply Yes Yes Yes; Without compensation of the line resistances Yes; Without compensation of the line resistances		40 1:3
Interference voltage suppression for interference frequency f1 in Hz Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time for resistive load for capacitive load for inductive load for inductive load for outputs Integration and conversion time/resolution per channel 12 bit 1 ms Settling time for capacitive load for capacitive load for capacitive load for output lo		
frequency f1 in Hz Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time ofor resistive load for capacitive load for inductive load for or inductive load for or voltage measurement for or voltage measurement for current measurement as 2-wire transducer for resistance measurement with two-wire connection output 1 ms 12 bit 1 ms 0.6 ms 1 ms 0.5 ms Encoder Connection of signal encoders Yes Yes Yes; with external supply Yes Yes; Without compensation of the line resistances Yes; Without compensation of the line resistances	·	
 Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time for resistive load for capacitive load for inductive load for inductive load for oltage measurement for current measurement as 2-wire transducer for current measurement as 4-wire transducer for resistance measurement with two-wire connection Tims 12 bit 13 ms 14 ms 15 bit 16 ms 17 ms 18 ms<td></td><td>400 / 60 / 50 HZ</td>		400 / 60 / 50 HZ
Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time of or resistive load of or capacitive load of or inductive load of or inductive load of or or inductive load of or or voltage measurement of or current measurement as 2-wire transducer of or current measurement as 4-wire transducer of or resistance measurement with two-wire connection 1 ms 1 bit 1 ms 1 bit 1 ms 1		0.38 ms
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time of or resistive load of or capacitive load of or inductive load of or inductive load of or voltage measurement of or current measurement as 2-wire transducer of or resistance measurement with two-wire connection of the line resistances Yes; Without compensation of the line resistances	•	
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) 1 ms Settling time for resistive load for capacitive load for inductive load for inductive load Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer for current measurement as 4-wire transducer for resistance measurement with two-wire connection Yes; Without compensation of the line resistances Yes; Without compensation of the line resistances	· · · · · · · · · · · · · · · · · · ·	
Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time of or resistive load of or capacitive load of or inductive load of or inductive load of or voltage measurement of or current measurement as 2-wire transducer of or current measurement as 4-wire transducer of or resistance measurement with two-wire connection 1 ms 0.6 ms 0.5 ms Encoder Yes if or voltage measurement of or current measurement as 2-wire transducer of or current measurement as 4-wire transducer of or resistance measurement with two-wire connection Yes; Without compensation of the line resistances	Analog value generation for the outputs	
Conversion time (per channel) Settling time for resistive load for capacitive load for inductive load for inductive load Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer for current measurement as 4-wire transducer for resistance measurement with two-wire connection 1 ms 0.6 ms 1 ms 0.5 ms Encoder Yes Yes Yes Yes Without compensation of the line resistances Yes; Without compensation of the line resistances	Integration and conversion time/resolution per channel	
Settling time • for resistive load • for capacitive load • for inductive load • for inductive load • for inductive load • for voltage measurement • for current measurement as 2-wire transducer • for current measurement as 4-wire transducer • for resistance measurement with two-wire connection • for resistance measurement with two-wire connection 0.6 ms 1 ms 0.5 ms Yes Yes Yes; with external supply Yes; with external supply Yes; Without compensation of the line resistances	• Resolution with overrange (bit including sign), max.	12 bit
 for resistive load for capacitive load for inductive load 0.5 ms Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer for current measurement as 4-wire transducer for resistance measurement with two-wire connection Yes Yes Without compensation of the line resistances 	 Conversion time (per channel) 	1 ms
 for capacitive load for inductive load 0.5 ms Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer for current measurement as 4-wire transducer for resistance measurement with two-wire connection 1 ms 0.5 ms Yes Yes Yes; with external supply Yes Yes; Without compensation of the line resistances 	Settling time	
 for inductive load Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer for current measurement as 4-wire transducer for resistance measurement with two-wire connection Ves Yes; with external supply Yes Yes Yes Yes Yes Yes Yes Yes 	 for resistive load 	0.6 ms
Encoder Connection of signal encoders • for voltage measurement • for current measurement as 2-wire transducer • for current measurement as 4-wire transducer • for resistance measurement with two-wire connection Yes Yes; with external supply Yes Yes; Without compensation of the line resistances	 for capacitive load 	1 ms
Connection of signal encoders • for voltage measurement • for current measurement as 2-wire transducer • for current measurement as 4-wire transducer • for resistance measurement with two-wire connection Yes Yes Yes Yes Yes Yes Yes Ye	 for inductive load 	0.5 ms
 for voltage measurement for current measurement as 2-wire transducer for current measurement as 4-wire transducer for resistance measurement with two-wire connection Yes; with external supply Yes Yes Yes; Without compensation of the line resistances 	Encoder	
 for voltage measurement for current measurement as 2-wire transducer for current measurement as 4-wire transducer for resistance measurement with two-wire connection Yes; with external supply Yes Yes Yes; Without compensation of the line resistances 	Connection of signal encoders	
 for current measurement as 4-wire transducer for resistance measurement with two-wire connection Yes Yes; Without compensation of the line resistances 	_	Yes
• for resistance measurement with two-wire connection Yes; Without compensation of the line resistances	-	Yes; with external supply
connection	• for current measurement as 4-wire transducer	
	 for resistance measurement with two-wire 	Yes; Without compensation of the line resistances
• for resistance measurement with three-wire No		
	• for resistance measurement with three-wire	No

connection	
connection	No
 for resistance measurement with four-wire connection 	No
Connectable encoders	
2-wire sensor	Yes
 permissible quiescent current (2-wire sensor), 	1.5 mA
max.	
Errors/accuracies	
Temperature error (relative to input range), (+/-)	0.006 %/K
Crosstalk between the inputs, min.	60 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.06 %
Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-)	0.1 %
Linearity error (relative to output range), (+/-)	0.15 %
Temperature error (relative to output range), (+/-)	0.01 %/K
Crosstalk between the outputs, min.	60 dB
Repeat accuracy in steady state at 25 °C (relative to output range), (+/-)	0.06 %
Operational error limit in overall temperature range	
Voltage, relative to input range, (+/-)	1 %
• Current, relative to input range, (+/-)	1 %
Resistance, relative to input range, (+/-)	5 %
Voltage, relative to output range, (+/-)	1 %
• Current, relative to output range, (+/-)	1 %
Basic error limit (operational limit at 25 °C)	
Voltage, relative to input range, (+/-)	0.7 %; Linearity error ±0.06 %
• Current, relative to input range, (+/-)	0.7 %; Linearity error ±0.06 %
• Resistance, relative to input range, (+/-)	3 %; Linearity error ±0.2 %
Resistance thermometer, relative to input range, (+/-)	3 %
Voltage, relative to output range, (+/-)	0.7 %
Current, relative to output range, (+/-)	0.7 %
Interference voltage suppression for $f = n \times (f1 + /-1 \%)$, $f1 =$	
Series mode interference (peak value of	30 dB
interference < rated value of input range), min.	
Common mode interference, min.	40 dB
Interfaces	
Number of industrial Ethernet interfaces	0
Number of PROFINET interfaces	0
Number of RS 485 interfaces	1; MPI
Number of RS 422 interfaces	0
MPI	
Cable length, max.	50 m; without repeater
1. Interface	
Interface type	Integrated RS 485 interface
Isolated	No
Interface types	
• RS 485	Yes
Output current of the interface, max.	200 mA
Protocols	
• MPI	Yes
 PROFIBUS DP master 	No
	· ·
PROFIBUS DP slave	No
Point-to-point connection	No No
Point-to-point connection MPI	No
 Point-to-point connection MPI Number of connections 	No 8
 Point-to-point connection MPI Number of connections Transmission rate, max. 	No
 Point-to-point connection MPI Number of connections Transmission rate, max. Services 	No 8 187.5 kbit/s
 Point-to-point connection MPI Number of connections Transmission rate, max. 	No 8

Clobal data communication	Von
Global data communication S7 basis communication	Yes
S7 basic communication S7 communication	Yes Yes
S7 communication S7 communication, as client	Yes No
— S7 communication, as server	Yes
Protocols	
PROFIsafe	No
communication functions / header	
PG/OP communication	Yes
Global data communication	
• supported	Yes
Number of GD loops, max.	4
 Number of GD packets, max. 	4
 Number of GD packets, transmitter, max. 	4
 Number of GD packets, receiver, max. 	4
 Size of GD packets, max. 	22 byte
Size of GD packet (of which consistent), max.	22 byte
S7 basic communication	
• supported	Yes
 User data per job, max. 	76 byte
 User data per job (of which consistent), max. 	76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or
S7 communication	X_GET as server)
supported	Yes
as server	Yes
• as client	Yes; Via CP and loadable FB
User data per job, max.	180 byte; With PUT/GET
User data per job (of which consistent), max.	64 byte
S5 compatible communication	,
• supported	Yes; via CP and loadable FC
Number of connections	
• overall	8
 usable for PG communication 	7
 reserved for PG communication 	1
 adjustable for PG communication, min. 	1
 adjustable for PG communication, max. 	7
 usable for OP communication 	7
 reserved for OP communication 	1
 adjustable for OP communication, min. 	1
 adjustable for OP communication, max. 	7
 usable for S7 basic communication 	4
 reserved for S7 basic communication 	0
— adjustable for S7 basic communication, min.	0
— adjustable for S7 basic communication, max.	4
usable for routing	No
S7 message functions	
Number of login stations for message functions, max.	8; Depending on the configured connections for PG/OP and S7 basic communication
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	20
Test commissioning functions	
Status block	Yes
Single step	Yes
Number of breakpoints	2
Status/control	
Status/control variable	Yes
 Variables 	Inputs, outputs, memory bits, DB, times, counters
Number of variables, max.	30
— of which status variables, max.	30
 of which control variables, max. 	14

Foreing	
Forcing	Voc
• Forcing	Yes
Forcing, variables Number of variables, may	Inputs, outputs 10
Number of variables, max. Diagnostic buffer.	10
Diagnostic buffer	Voc
Present Number of entries, may	Yes
Number of entries, max.	100
Interrupts/diagnostics/status information	
Diagnostics indication LED	
Status indicator digital input (green)	Yes
Status indicator digital output (green)	Yes
Integrated Functions	
Counter	
 Number of counters 	3; 3 channels (see "Technological Functions" manual)
Counting frequency, max.	30 kHz
Frequency measurement	Yes
Number of frequency meters	3; 3 channels up to max. 30 kHz (see "Technological Functions" manual)
controlled positioning	No
integrated function blocks (closed-loop control)	Yes; PID controller (see "Technological Functions" manual)
PID controller	Yes
Number of pulse outputs	3; 3 channels pulse width modulation up to max. 2.5 kHz (see "Technological Functions" manual)
Limit frequency (pulse)	2.5 kHz
Potential separation	
Potential separation digital inputs	
 Potential separation digital inputs 	Yes
 between the channels 	No
between the channels and backplane bus	Yes
Potential separation digital outputs	
 Potential separation digital outputs 	Yes
 between the channels 	Yes
 between the channels, in groups of 	8
between the channels and backplane bus	Yes
Potential separation analog inputs	
 Potential separation analog inputs 	Yes; common for analog I/O
 between the channels 	No
between the channels and backplane bus	Yes
Potential separation analog outputs	
 Potential separation analog outputs 	Yes; common for analog I/O
 between the channels 	No
 between the channels and backplane bus 	Yes
Isolation	
Isolation tested with	600 V DC
configuration / header	
Configuration software	
• STEP 7	Yes; V5.3 SP2 with HW update
configuration / programming / header	
Command set	see instruction list
Nesting levels	8
System functions (SFC)	see instruction list
System function blocks (SFB)	see instruction list
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— GRAPH	Yes
— HiGraph®	Yes
Know-how protection	
Tallow How protection	

 User program protection/password protection 	Yes
Dimensions	
Width	120 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	660 g

last modified: 7/28/2021 🖸