SIEMENS

Data sheet



SIPLUS S7-300 CPU 314C based on 6ES7314-6BH04-0AB0 with conformal coating, -25...+70 °C, compact CPU with MPI, 24 DI/16 DQ, 4 AI, 2 AQ, 1 Pt100, 4 high-speed counters (60 kHz), integrated interface RS-485, integrated power supply 24 V DC, work memory 192 KB, front connector (2x 40-pole) and Micro Memory Card required

Figure similar

General information	
based on	6ES7314-6BH04-0AB0
Engineering with	
Programming package	STEP 7 as of V5.5 + SP1 or STEP 7 V5.3 + SP2 or higher with HSP 204
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 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
Mains buffering	
 Mains/voltage failure stored energy time 	5 ms
Repeat rate, min.	1 s
Load voltage L+	
Digital inputs	
— load voltage / at digital input / at DC / rated value	24 V
 Reverse polarity protection 	Yes
Digital outputs	
— Rated value (DC)	24 V
 Reverse polarity protection 	No
Input current	
Current consumption (rated value)	660 mA
Current consumption (in no-load operation), typ.	150 mA
Inrush current, typ.	5 A
I²t	0.7 A ² ·s
Digital inputs	
 from load voltage L+ (without load), max. 	80 mA
Digital outputs	
from load voltage L+, max.	50 mA
Power loss	
Power loss, typ.	13 W
Memory	
Work memory	
integrated	192 kbyte
• expandable	No
Load memory	
• Plug-in (MMC)	Yes
Plug-in (MMC), max.	8 Mbyte
 Data management on MMC (after last programming), min. 	10 a

Backup	
• present	Yes; Guaranteed by MMC (maintenance-free)
without battery	Yes; Program and data
CPU processing times	
for bit operations, typ.	0.06 μs
for word operations, typ.	0.12 µs
for fixed point arithmetic, typ.	0.16 µs
for floating point arithmetic, typ.	0.59 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.	1 024; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
Number, max.	see instruction list
• Size, max.	64 kbyte
Number of free cycle OBs	1; OB 1
Number of time alarm OBs	1; OB 10
 Number of delay alarm OBs 	2; OB 20, 21
 Number of cyclic interrupt OBs 	4; OB 32, 33, 34, 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 	16
additional within an error OB	4
Counters, timers and their retentivity	
S7 counter	
• Number	256
Retentivity	
— adjustable	Yes
— preset	Z 0 to Z 7
Counting range	
— lower limit	0
— upper limit	999
IEC counter	Ver
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
S7 times	050
Number Peterstivity	256
Retentivity	Voc
— adjustable	Yes
— preset	No retentivity
Time range	10 mg
— lower limit	10 ms 9 990 s
	3 330 8
— upper limit	
— upper limit IEC timer	
— upper limit IEC timer ● present	Yes
— upper limit IEC timer • present • Type	Yes SFB
 — upper limit IEC timer present Type Number 	Yes
— upper limit IEC timer • present • Type	Yes SFB

Flan	
Flag	050 h. ts
Size, max. Determinist available.	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	Vancila and astria according DD
Retentivity adjustable	Yes; via non-retain property on DB
Retentivity preset	Yes
Local data	00 librates Mary 0040 by the mary black
• per priority class, max.	32 kbyte; Max. 2048 bytes per block
Address area	
I/O address area	1.024 byte
• Inputs	1 024 byte
Outputs of which distributed.	1 024 byte
of which distributed	none
— Inputs	none
— Outputs	none
Process image	1 024 byte
• Inputs	
Outputs Inputs adjustable	1 024 byte
Inputs, adjustable Outputs, adjustable	1 024 byte
Outputs, adjustable Inputs, default	1 024 byte
Inputs, default Outputs, default	128 byte
Outputs, default Default addresses of the integrated channels.	128 byte
Default addresses of the integrated channels	124.0 to 126.7
— Digital inputs— Digital outputs	124.0 to 125.7
— Digital outputs — Analog inputs	752 to 761
- 1	752 to 755
— Analog outputs Digital channels	752 to 755
	1 016
Inputs— of which central	1 016
Outputs	1 008
— of which central	1 008
Analog channels	1 000
• Inputs	253
— of which central	253
Outputs	250
— of which central	250
Hardware configuration	200
Number of expansion units, max.	3
Number of DP masters	3
• integrated	none
• via CP	4
Number of operable FMs and CPs (recommended)	*
FM	8
• CP, PtP	8
• CP, PIP • CP, LAN	0 10
Rack	
• Racks, max.	4
Modules per rack, max.	8; In rack 3 max. 7
Time of day	o _j son o man. i
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; Typ.: 2 s
Behavior of the clock following POWER-ON	Clock continues running after POWER OFF
Behavior of the clock following expiry of backup period	the clock continues at the time of day it had when power was switched off
	and distribution at the time of day it flad when power was switched off
Operating hours counter	

Range of values O to 2*31 hours (when using SFC 101) I th Formal control of the control of t		
Clock synchronization February Clock synchronization Supported For Supported	-	
* retentive	-	
Clock synchronization • supported • to MPI, master • on MPI, device • in AS, master • in AS, device No Digital imparts • of which inputs usable for technological functions inlegrated channels (D) Imput characteristic curve in accordance with IEC 61131, type 1 Number of simultaneously controllable inputs biorizontal installation — up to 40 °C, max — up to 60 °C, max — up to 60 °C, max — up to 60 °C, max — 12: up to 70 °C vertical installation — up to 40 °C, max — 12: up to 70 °C vertical installation — up to 40 °C, max — 12: up to 70 °C vertical installation — up to 40 °C, max — 12: up to 70 °C vertical installation — up to 40 °C, max — 12: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — up to 40 °C, max — 15: up to 70 °C vertical installation — 16: up to 70 °C vertical installation — up to 40 °C, max — 16: up to 40 °C, max — 17: up to 40 °C, max — 18: up to 40 °C, max — 19: up to 40 °C, max — 1		
* supported * to MPI, master * on MPI, device * in AS, master * in AS, device * in AS, device * No Digital Imputs Number of digital injusts * of which injusts usable for technological functions Infegrated channels (D)		Yes; Must be restarted at each restart
to MPI, device on MPI, device vin AS, master vin AS, master vin AS, device No Digital inputs Number of digital inputs vin AS, device Input characteristic curve in accordance with IEC 61131, type 1 Number of simultaneously controlable inputs Number of simultaneously controlable inputs North of digital inputs Number of simultaneously controlable inputs North of digital inputs Number of simultaneously controlable inputs North of the Common of the Commo	•	
on MPI, device in AS, master vis AS, device in AS, device No Oigital inputs Number of digital inputs of which inputs usable for technological functions integrated channels (DI) put characteristic curve in accordance with IEC 61131, type 1 Number of simultaneously controllable inputs horizontal installation — up to 40 °C, max. — up to 60 °C, max. — up to 60 °C, max. — up to 40 °C, max. — 12 Input voltage Rated value (DC) for signal °0° for signal °1°		
in AS, device in AS, device No Digital inputs in AS, device No Digital inputs of digital inputs of digital inputs of which inputs usable for technological functions integrated channels (DI) Junut characteristic curve in accordance with IEC 61131, type 1 Number of simultaneously controllable inputs horizontal installation — up to 40 °C, max. — up to 60 °C, max. Vettical installation — up to 40 °C, max. Junut voltage Rated value (DC) for signal '1' for signal '1' for signal '1' put delay (for rated value of input voltage) for standard inputs — parameterizable — parameterizable — parameterizable — Rated value for retechnological functions — at '0' to "1", max. Cable length • shielded, max. • unshielded, max. • unshielded, max. • unshielded, max. — unshielded, max.		
In AS, device No		
Digital inputs Digital inputs 24		
Number of digital inputs • of which inputs usable for technological functions integrated channels (DI) input characteristic curve in accordance with IEC 61131, type 1 Number of simultaneously controllable inputs horizontal installation — up to 40 °C, max. — up to 60 °C, max. — up to 60 °C, max. — up to 60 °C, max. — up to 40 °C, max. — 12 input voltage • Rated value (DC) • for signal "1" • for signal "1", typ. Input current • for signal "1", typ. Input delay (for rated value of input voltage) for standard inputs — parameterizable — parameterizable — parameterizable — parameterizable — rated value for technological functions — at "0" to "1", max. Cable length • shielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • of which high-speed outputs • for digital outputs • of which high-speed outputs • Response threshold, typ. • Indigital outputs • Response threshold, typ. • Response threshold, typ. • on signal applications • Response threshold, typ. • Ont-folling a digital input • Response threshold, typ. • Ont-folling a digital input • Response threshold, typ. • Ont-folling a digital input •	· .	No
• of which inputs usable for technological functions integrated channels (DI) 24 Input characteristic curve in accordance with IEC 61131, type 1 Number of simultaneously controllable inputs horizontal installation — up to 40 °C, max.		
integrated channels (DI) Input characteristic curve in accordance with IEC 61131, type 1 Number of simultaneously controllable inputs horizontal installation — up to 40 °C, max. — up to 60 °C, max. vertical installation — up to 40 °C, max. 12 (up to 70 °C vertical installation — up to 40 °C, max. 12 (up to 70 °C vertical installation — up to 40 °C, max. 12 (up to 70 °C for signal °0 °C for signal °0 °C for signal °1 °C for signal	Number of digital inputs	24
Input characteristic curve in accordance with IEC 61131, type 1 Number of simultaneously controllable inputs horizontal installation — up to 40 °C, max. — up to 60 °C, max. — up to 40 °C, max. — up to 40 °C, max. — up to 40 °C, max. 12 Input voltage • Rated value (DC) • for signal °C' • for signal °C' • for signal °1", typ. Input current • for signal °1", typ. Input delay (for rated value of input voltage) for standard inputs — parameterizable — Rated value For technological functions — at °C' to °1", max. Cable length • shielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • unshielded, max. Oligital outputs Number of digital outputs • for which high-speed outputs integrated channes (CO) Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Yes Swt. Load resistance range	of which inputs usable for technological functions	16
Number of simultaneously controllable inputs horizontal installation	integrated channels (DI)	24
horizontal installation up to 40 °C, max. 24 up to 60 °C, max. 12; up to 70 °C vertical installation up to 40 °C, max. 12 input voltage • Rated value (DC) 24 V • for signal °C -3 to +5V • for signal °C -3 to +5V • for signal °C -3 to +5V input current • for signal °C -3 to +5V input delay (for rated value of input voltage) for standard inputs parameterizable Yes; 0.1 / 0.3 / 3 / 15 ms (You can reconfigure the input delay of the stands inputs during program runtime. Please note that under certain circumstancy your newly set filter time may not be effective until the next filter cycle.) 3 ms for technological functions at °C' to °1", max. 8 µs; Minimum pulse width/minimum pause between pulses at maximum counting frequency Cable length • shielded, max. 1000 m; 50 m for technological functions shielded, max. 600 m; for technological functions shielded, max. 50 m; at maximum count frequency not allowed Digital outputs Number of digital outputs • of which high-speed outputs integrated channels (DO) 16 Short-circuit protection 4; speed outputs integrated channels (DO) 16 Short-circuit protection 4; speed outputs integrated channels (DO) 16 Short-circuit protection 4; speed outputs integrated channels (DO) 16 Short-circuit protection 4; speed outputs integrated channels (DO) 16 Short-circuit protection 4; speed outputs integrated channels (DO) 16 Short-circuit protection 4; speed outputs 4; Notice: You cannot connect the fast outputs of your CPU in parallel integrated channels (DO) 16 Short-circuit protection 4; speed outputs 4; Notice: You cannot connect the fast outputs of your CPU in parallel integrated channels (DO) 16 Short-circuit protection 4; speed outputs 4; Notice: You cannot connect the fast outputs of your CPU in parallel integrated channels (DO) 16 Short-circuit protection 4; speed outputs 4; Notice: You cannot connect the fast outputs of your CPU in parallel integrated channels (DO) 16 Short-circuit protection 5; SW	Input characteristic curve in accordance with IEC 61131, type 1	Yes
- up to 40 °C, max up to 60 °C, max. - up to 40 °C, max. 12 input voltage • Rated value (DC) • for signal "0" • for signal "1" • for sig	Number of simultaneously controllable inputs	
vertical installation — up to 40 °C, max. Input voltage Rated value (DC) • for signal "0" • for signal "1" • shead value of input voltage) for standard inputs — parameterizable — parameterizable — parameterizable — Pated value • a max — shelded, max. • unshielded, max. — unshielded, max. — shelded, max. — unshielded, max. — of which high-speed outputs integrated channels (DO) Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Characterists • on lamp load, max. Load resistance range		
vertical installation — up to 40 °C, max. 12	— up to 40 °C, max.	24
- up to 40 °C, max. 12 Input voltage • Rated value (DC) 24 V -3 to +5V • for signal *10" +15 to +30 V Input current • for signal *11" +15 to +30 V Input current • for signal *11", typ. 8 mA Input delay (for rated value of input voltage) for standard inputs Yes; 0.1 / 0.3 / 3 / 15 ms (You can reconfigure the input delay of the standard inputs during program runtime. Please note that under certain circumstance your newly set filter time may not be effective until the next filter cycle.) 3 ms For technological functions -a t*0" to *1", max. 8 µs; Minimum pulse width/minimum pause between pulses at maximum counting frequency Cable length • shielded, max. 1 000 m; 50 m for technological functions • shielded, max. 50 m; at maximum count frequency • shielded, max. 50 m; at maximum count frequency unshielded, max. 50 m; at maximum count frequency of which high-speed outputs 4; Notice: You cannot connect the fast outputs of your CPU in parallel 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	— up to 60 °C, max.	12; up to 70 °C
Input voltage Rated value (DC) for signal "0" for signal "1" this to +30 V Input current for signal "11", typ. 8 mA Input delay (for rated value of input voltage) for standard inputs — parameterizable — parameterizable — parameterizable — Rated value 3 ms for technological functions — at "0" to "1", max. Cable length • shielded, max. • unshielded, max. • unshielded, max. — of digital outputs Number of digital outputs Number of digital outputs • of which high-speed outputs • Response threshold, typ. Limitation of inductive shutdown voltage to Can lamp load, max. • on lam	vertical installation	
Rated value (DC) of or signal "0" of or signal "1" Input current of or signal "1", typ. Input delay (for rated value of input voltage) for standard inputs — parameterizable — parameterizable — parameterizable — Pated value 3 ms for technological functions — at "0" to "1", max. Sa µs; Minimum pulse width/minimum pause between pulses at maximum counting frequency Cable length oshielded, max. unshielded, max. or technological functions — shielded, max. unshielded, max. unshielded, max. or technological functions — shielded, max. or technological functions — shielded, max. or the chonological functions — shielded, max. or the chonological functions — shielded, max. or the chonological functions — shielded, max. — unshielded, max. — unshielded, max. — unshielded, max. — to digital outputs Number of digital outputs of which high-speed outputs integrated channels (DO) Short-circuit protection or Response threshold, typ. Limitation of inductive shutdown voltage to L+ (-48 V) Controlling a digital input or lamp load, max. or lamp load, max. 5 W Load resistance range	— up to 40 °C, max.	12
• for signal "0" • for signal "1" Input current • for signal "1", typ. Input delay (for rated value of input voltage) for standard inputs — parameterizable — parameterizable — Rated value for technological functions — at "0" to "1", max. Cable length • shielded, max. • unshielded, max. — unshielded, max. — unshielded, max. — unshielded, max. — oun shielded, max. — unshielded, max. — oun shielded, max. — unshielded,	Input voltage	
• for signal "1" +15 to +30 V Input current • for signal "1", typ. 8 mA Input delay (for rated value of input voltage) for standard inputs — parameterizable Yes; 0.1 / 0.3 / 3 / 15 ms (You can reconfigure the input delay of the standa inputs during program runtime. Please note that under certain circumstance your newly set filter time may not be effective until the next filter cycle.) — Rated value 3 ms for technological functions — at "0" to "1", max. 8 μs; Minimum pulse width/minimum pause between pulses at maximum counting frequency Cable length • shielded, max. 1000 m; 50 m for technological functions • unshielded, max. 600 m; for technological functions: No for technological functions — shielded, max. 50 m; at maximum count frequency — unshielded, max. not allowed Digital outputs Number of digital outputs 16 • of which high-speed outputs 4; Notice: You cannot connect the fast outputs of your CPU in parallel 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	 Rated value (DC) 	24 V
Input current • for signal "1", typ. Input delay (for rated value of input voltage) for standard inputs — parameterizable — parameterizable Yes; 0.1 / 0.3 / 3 / 15 ms (You can reconfigure the input delay of the standard inputs during program runtime. Please note that under certain circumstance your newly set filter time may not be effective until the next filter cycle.) — Rated value 3 ms for technological functions — at "0" to "1", max. 8 µs; Minimum pulse width/minimum pause between pulses at maximum counting frequency Cable length • shielded, max. • unshielded, max. • unshielded, max. — of digital outputs Number of digital outputs Number of digital outputs 16 • of which high-speed outputs 17, Notice: You cannot connect the fast outputs of your CPU in parallel integrated channels (DO) Short-circuit protection • Response threshold, typ. 1 A Limitation of inductive shutdown voltage to Controlling a digital input Yes Switching capacity of the outputs • on lamp load, max. • on lamp load, max. Load resistance range	• for signal "0"	-3 to +5V
• for signal "1", typ. 8 mA Input delay (for rated value of input voltage) for standard inputs — parameterizable Yes; 0.1 / 0.3 / 3 / 15 ms (You can reconfigure the input delay of the standard inputs during program runtime. Please note that under certain circumstance your newly set filter time may not be effective until the next filter cycle.) — Rated value 3 ms for technological functions — at "0" to "1", max. 8 μs; Minimum pulse width/minimum pause between pulses at maximum counting frequency Cable length • shielded, max. 1000 m; 50 m for technological functions — shielded, max. 600 m; for technological functions: No for technological functions — unshielded, max. 50 m; at maximum count frequency not allowed Digital outputs Number of digital outputs 16 • of which high-speed outputs 4; Notice: You cannot connect the fast outputs of your CPU in parallel 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 • on lamp load, max. 5 W Load resistance range	• for signal "1"	+15 to +30 V
Input delay (for rated value of input voltage) for standard inputs	Input current	
for standard inputs	• for signal "1", typ.	8 mA
— parameterizable Yes; 0.1 / 0.3 / 3 / 15 ms (You can reconfigure the input delay of the standar inputs during program runtime. Please note that under certain circumstance your newly set filter time may not be effective until the next filter cycle.) — Rated value 3 ms for technological functions — at "0" to "1", max. 8 μs; Minimum pulse width/minimum pause between pulses at maximum counting frequency Cable length • shielded, max. • unshielded, max. • unshielded, max. — shielded, max. — shielded, max. — unshielded, max. — unshielded, max. — unshielded, max. — unshielded, max. — to tallowed Digital outputs Number of digital outputs • of which high-speed outputs integrated channels (DO) Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Yes Switching capacity of the outputs • on lamp load, max. 5 W Load resistance range	Input delay (for rated value of input voltage)	
inputs during program runtime. Please note that under certain circumstance your newly set filter time may not be effective until the next filter cycle.) — Rated value for technological functions — at "0" to "1", max. 8 µs; Minimum pulse width/minimum pause between pulses at maximum counting frequency Cable length • shielded, max. • unshielded, max. • unshielded, max. — shielded, max. — unshielded, max. — to max. — unshielded, max. 1000 m; 50 m for technological functions: No for technological functions: No for technological functions — shielded, max. — unshielded, max. — unshielded, max. 1000 m; to technological functions: No for technological functions: No 1000 m;	for standard inputs	
for technological functions — at "0" to "1", max. 8 μs; Minimum pulse width/minimum pause between pulses at maximum counting frequency Cable length • shielded, max. • unshielded, max. 600 m; for technological functions: No for technological functions was a maximum count frequency — shielded, max. — unshielded, max. — unshielded, max. Digital outputs Number of digital outputs • of which high-speed outputs integrated channels (DO) Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Yes Switching capacity of the outputs • on lamp load, max. Load resistance range	— parameterizable	Yes; $0.1/0.3/3/15$ ms (You can reconfigure the input delay of the standard inputs during program runtime. Please note that under certain circumstances your newly set filter time may not be effective until the next filter cycle.)
- at "0" to "1", max. 8 μs; Minimum pulse width/minimum pause between pulses at maximum counting frequency Cable length • shielded, max. • unshielded, max. - shielded, max. - shielded, max. - unshielded, max. - unshielded, max. - unshielded, max. 50 m; at maximum count frequency not allowed Digital outputs 16	— Rated value	3 ms
Cable length • shielded, max. • unshielded, max. - unshielded, max. - shielded, max. - shielded, max. - shielded, max. - unshielded, max. Number of digital outputs Number of digital outputs 16 • of which high-speed outputs integrated channels (DO) Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Yes Switching capacity of the outputs • on lamp load, max. Load resistance range	· · · · · · · · · · · · · · · · · · ·	
 shielded, max. unshielded, max. 600 m; for technological functions: No for technological functions — shielded, max. — unshielded, max. — unshielded, max. — unshielded, max. — unshielded, max. Digital outputs Number of digital outputs — of which high-speed outputs integrated channels (DO) Short-circuit protection — Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Yes Switching capacity of the outputs — on lamp load, max. 5 W Load resistance range 		
 unshielded, max. for technological functions: No for technological functions: — shielded, max. — unshielded, max. — unshielded, max. Digital outputs Number of digital outputs fo which high-speed outputs integrated channels (DO) Short-circuit protection Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs fo on lamp load, max. 5 W 	Cable length	
for technological functions — shielded, max. — unshielded, max. Digital outputs Number of digital outputs • of which high-speed outputs integrated channels (DO) Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs • on lamp load, max. 50 m; at maximum count frequency not allowed 16 4; Notice: You cannot connect the fast outputs of your CPU in parallel 16 Yes; Clocked electronically 1 A L+ (-48 V) Yes Switching capacity of the outputs • on lamp load, max. 5 W Load resistance range	• shielded, max.	1 000 m; 50 m for technological functions
— shielded, max. — unshielded, max. Digital outputs Number of digital outputs 16 • of which high-speed outputs integrated channels (DO) Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs • on lamp load, max. 50 m; at maximum count frequency not allowed 16 4; Notice: You cannot connect the fast outputs of your CPU in parallel 16 Yes; Clocked electronically 1 A Li+ (-48 V) Yes Switching capacity of the outputs • on lamp load, max. 5 W Load resistance range	• unshielded, max.	600 m; for technological functions: No
— unshielded, max. Digital outputs Number of digital outputs of which high-speed outputs integrated channels (DO) Short-circuit protection Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs on lamp load, max. In allowed 16 4; Notice: You cannot connect the fast outputs of your CPU in parallel in parallel integrated channels (DO) 16 Short-circuit protection Yes; Clocked electronically 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	for technological functions	
Digital outputs Number of digital outputs 16 ● of which high-speed outputs 4; Notice: You cannot connect the fast outputs of your CPU in parallel integrated channels (DO) 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 5 W Load resistance range 5 W	— shielded, max.	50 m; at maximum count frequency
Number of digital outputs ● of which high-speed outputs integrated channels (DO) Short-circuit protection ● Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs ● on lamp load, max. Load resistance range	— unshielded, max.	not allowed
 of which high-speed outputs integrated channels (DO) Short-circuit protection Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs on lamp load, max. Load resistance range 4; Notice: You cannot connect the fast outputs of your CPU in parallel 16 Yes; Clocked electronically 1 A L+ (-48 V) Switching capacity of the outputs 5 W 	Digital outputs	
integrated channels (DO) Short-circuit protection Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs on lamp load, max. Load resistance range	Number of digital outputs	16
Short-circuit protection Response threshold, typ. Imitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs on lamp load, max. Load resistance range	of which high-speed outputs	4; Notice: You cannot connect the fast outputs of your CPU in parallel
 Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs on lamp load, max. Load resistance range 	integrated channels (DO)	16
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	Short-circuit protection	Yes; Clocked electronically
Controlling a digital input Switching capacity of the outputs on lamp load, max. 5 W Load resistance range	Response threshold, typ.	1A
Switching capacity of the outputs • on lamp load, max. 5 W Load resistance range	Limitation of inductive shutdown voltage to	L+ (-48 V)
on lamp load, max. 5 W Load resistance range	Controlling a digital input	Yes
on lamp load, max. 5 W Load resistance range	Switching capacity of the outputs	
·	• on lamp load, max.	5 W
• lower limit 48 Ω	Load resistance range	
	• lower limit	48 Ω
• upper limit 4 kΩ	• upper limit	4 kΩ
Output voltage		
● for signal "1", min. L+ (-0.8 V)	· ·	L+ (-0.8 V)
Output current		
• for signal "1" rated value 500 mA	·	500 mA
• for signal "1" permissible range, min. 5 mA	-	

a for signal "4" normicsible range, may	0.6.4
• 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	
• for uprating	No
for redundant control of a load	Yes
Switching frequency	
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.	2.5 kHz
Total current of the outputs (per group)	
horizontal installation	
— up to 40 °C, max.	3 A
— up to 60 °C, max.	2 A; 1.5 A @ > 60 °C
vertical installation	
— up to 40 °C, max.	2 A
Cable length	
• shielded, max.	1 000 m
unshielded, max.	600 m
Analog inputs	
Number of analog inputs	5
 For voltage/current measurement 	4
For resistance/resistance thermometer measurement	1
integrated channels (AI)	5; 4x current/voltage, 1x resistance
permissible input voltage for current input (destruction limit), max.	5 V; Permanent
permissible input voltage for voltage input (destruction limit), max.	30 V; Permanent
permissible input current for voltage input (destruction limit), max.	0.5 mA; Permanent
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.	3.3 V
Constant measurement current for resistance-type transmitter, typ.	1.25 mA
Technical unit for temperature measurement adjustable	Yes; Degrees Celsius / degrees Fahrenheit / Kelvin
Input ranges	
 Voltage 	Yes; ± 10 V / 100 k Ω ; 0 V to 10 V / 100 k Ω
Current	Yes; ±20 mA / 100 Ω ; 0 mA to 20 mA / 100 Ω ; 4 mA to 20 mA / 100 Ω
Resistance thermometer	Yes; Pt 100 / 10 MΩ
Resistance	Yes; 0 Ω to 600 Ω / 10 M Ω
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	
• Pt 100	Yes
— Input resistance (Pt 100)	10 ΜΩ
Input ranges (rated values), resistors	
• 0 to 600 ohms	Yes
— Input resistance (0 to 600 ohms)	10 ΜΩ
Thermocouple (TC)	
Temperature compensation	
— parameterizable	No
ραιαποιοπέασιο	110

Characteristic linearization	V
parameterizable	Yes; by software
— for resistance thermometer	Pt 100
Cable length	
• shielded, max.	100 m
Analog outputs	
Number of analog outputs	2
integrated channels (AO)	2
Voltage output, short-circuit protection	Yes
Voltage output, short-circuit current, max.	55 mA
Current output, no-load voltage, max.	14 V
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
• 4 mA to 20 mA	Yes
Connection of actuators	
for voltage output two-wire connection	Yes; Without compensation of the line resistances
for voltage output four-wire connection	No
for current output two-wire connection	Yes
Load impedance (in rated range of output)	
with voltage outputs, min.	1 kΩ
with voltage outputs, min. with voltage outputs, capacitive load, max.	0.1 μF
 with voltage outputs, capacitive load, max. with current outputs, max. 	300 Ω
-	
with current outputs, inductive load, max. Posturation limits against externally applied voltages and surrents.	0.1 mH
Destruction limits against externally applied voltages and currents	40.1/2 Damaga and
Voltages at the outputs towards MANA	16 V; Permanent
Current, max.	50 mA; Permanent
Cable length	000
• shielded, max.	200 m
shielded, max. Analog value generation for the inputs	
shielded, max. Analog value generation for the inputs Measurement principle	200 m Actual value encryption (successive approximation)
shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel	Actual value encryption (successive approximation)
shielded, max. Analog value generation for the inputs Measurement principle	
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	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms
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	Actual value encryption (successive approximation) 12 bit
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	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz
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	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms
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)	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz
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)	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms
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	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms
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	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms
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.	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms
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)	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms
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	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms
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	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms 0.6 ms
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	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms 0.6 ms 1 ms
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	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms 0.6 ms
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 Encoder	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms 0.6 ms 1 ms
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 Encoder Connection of signal encoders	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms 0.6 ms 1 ms 0.5 ms
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 Encoder	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms 0.6 ms 1 ms
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 Encoder Connection of signal encoders	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms 0.6 ms 1 ms 0.5 ms
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 Encoder Connection of signal encoders for voltage measurement	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms 0.6 ms 1 ms 0.5 ms
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 Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms 0.6 ms 1 ms 0.5 ms Yes Yes; with external supply
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 Encoder Connection of signal encoders for voltage measurement for current measurement as 2-wire transducer for current measurement as 4-wire transducer	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms 0.6 ms 1 ms 0.5 ms Yes Yes; with external supply Yes
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 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	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms 0.6 ms 1 ms 0.5 ms Yes Yes; with external supply Yes Yes; Without compensation of the line resistances
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 Encoder Connection of signal encoders for outrent measurement for current measurement as 2-wire transducer for current measurement with two-wire connection for resistance measurement with three-wire connection	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms 0.6 ms 1 ms 0.5 ms Yes Yes; with external supply Yes Yes; Without compensation of the line resistances No
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 Fincoder Connection of signal encoders for outrent measurement for current measurement as 2-wire transducer for current measurement with two-wire connection for resistance measurement with three-wire connection for resistance measurement with four-wire connection	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms 0.6 ms 1 ms 0.5 ms Yes Yes; with external supply Yes Yes; Without compensation of the line resistances No
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 Encoder Connection of signal encoders for ourrent measurement for current measurement as 2-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 four-wire connection Connectable encoders	Actual value encryption (successive approximation) 12 bit Yes; 16.6 / 20 ms 50 / 60 Hz 0.38 ms 1 ms 12 bit 1 ms 0.6 ms 1 ms 0.5 ms Yes Yes; with external supply Yes Yes; Without compensation of the line resistances No No

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, (+/-) 	1 %
 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, (+/-)	0.8 %; Linearity error ±0.06 %
Current, relative to input range, (+/-)	0.8 %; Linearity error ±0.06 %
• Resistance, relative to input range, (+/-)	0.8 %; Linearity error ±0.2 %
 Resistance thermometer, relative to input range, (+/-) 	0.8 %
 Voltage, relative to output range, (+/-) 	0.8 %
Current, relative to output range, (+/-)	0.8 %
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interf	erence frequency
Series mode interference (peak value of interference < rated value of input range), min.	30 dB
 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	1; RS 422 / 485 combined
Point-to-point connection	
Cable length, max.	1 200 m
Integrated protocol driver	
— 3964 (R)	Yes
— ASCII	Yes
— RK 512	Yes
Transmission rate, RS 422/485	
— with 3964 (R) protocol, max.	19.2 kbit/s; 38.4 kbit/s half duplex; 19.2 kbit/s full duplex
— with ASCII protocol, max.	19.2 kbit/s; 38.4 kbit/s half duplex; 19.2 kbit/s full duplex
— with RK 512 protocol, max.	19.2 kbit/s; 38.4 kbit/s half duplex; 19.2 kbit/s full duplex
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 device	No
Point-to-point connection	No
MPI	
Transmission rate, max.	187.5 kbit/s
Services	TOTAL MUNICO
— PG/OP communication	Yes
	No
Routing Global data communication	Yes
 S7 basic communication 	Yes

\$7 communication	Voc. Only conver configured on one side
— S7 communication	Yes; Only server, configured on one side
— S7 communication, as client	No; but via CP and loadable FB
— S7 communication, as server	Yes
2. Interface	late weeted DO 400/405 interfere
Interface type	Integrated RS 422/ 485 interface
Isolated	Yes
Interface types	V DO 100 / 107 (V OT)
• RS 485	Yes; RS 422 / 485 (X.27)
Output current of the interface, max.	No
Protocols	
• MPI	No
PROFINET IO Controller	No
PROFINET IO Device	No
PROFINET CBA	No
PROFIBUS DP master	No
PROFIBUS DP device	No
Point-to-point connection	Yes
Point-to-point connection	
Transmission rate, max.	19.2 kbit/s; 38.4 kbit/s half duplex; 19.2 kbit/s full duplex
 Interface controllable from the user program 	Yes
Interface can trigger alarm/interrupt in the user program	Yes; Message on break - identification
Protocols	
PROFIsafe	No
communication functions / header	
PG/OP communication	Yes
Data record routing	No
Global data communication	
supported	Yes
 Number of GD loops, max. 	8
 Number of GD packets, max. 	8
 Number of GD packets, transmitter, max. 	8
 Number of GD packets, receiver, max. 	8
 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 X_GET
	as server)
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes; Via CP and loadable FB
 User data per job, max. 	180 kbyte; With PUT/GET
 User data per job (of which consistent), max. 	240 byte; as server
S5 compatible communication	
• supported	Yes; via CP and loadable FC
Number of connections	
• overall	12
 usable for PG communication 	11
 reserved for PG communication 	1
— adjustable for PG communication, min.	1
 adjustable for PG communication, max. 	11
usable for OP communication	11
 reserved for OP communication 	1
 adjustable for OP communication, min. 	1
adjustable for OP communication, max.	11
usable for S7 basic communication	8
reserved for S7 basic communication	0
adjustable for S7 basic communication, min.	0
adjustable for S7 basic communication, max.	8
aujuotabio foi or baolo communication, max.	•

7 message functions	40.00
Number of login stations for message functions, max.	12; Depending on the configured connections for PG/OP and S7 basic communication
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	300
est commissioning functions	
Status block	Yes; Up to 2 simultaneously
Single step	Yes
Number of breakpoints	4
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
Forcing	
Forcing	Yes
• Forcing, variables	Inputs, outputs
Number of variables, max.	10
Diagnostic buffer	
• present	Yes
 Number of entries, max. 	500
— adjustable	No
of which powerfail-proof	100; Only the last 100 entries are retained
 Number of entries readable in RUN, max. 	499
— adjustable	Yes; From 10 to 499
— preset	10
Service data	
can be read out	Yes
nterrupts/diagnostics/status information	
Diagnostics indication LED	
 Status indicator digital input (green) 	Yes
Status indicator digital output (green)	Yes
ntegrated Functions	
Frequency measurement	Yes
Number of frequency meters	4; up to 60 kHz (see "Technological Functions" manual)
controlled positioning	Yes
integrated function blocks (closed-loop control)	Yes; PID controller (see "Technological Functions" manual)
PID controller	Yes
Number of pulse outputs	4; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)
Limit frequency (pulse)	2.5 kHz
otential 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	V
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 tested with	600 V DC
Standards, approvals, certificates	
CE mark	Yes
cULus	Yes; File E239877
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
Use in hazardous areas	
• ATEX	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	-25 °C; = Tmin
• max.	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
 Installation altitude above sea level, max. 	5 000 m
Ambient air temperature-barometric pressure-altitude	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)
Relative humidity	
 With condensation, tested in accordance with IEC 60068- 2-38, max. 	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
Use in stationary industrial systems	
to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
 to chemically active substances according to EN 60721-3-3 	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
 to biologically active substances according to EN 60721-3-6 	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
 to chemically active substances according to EN 60721-3-6 	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
 to mechanically active substances according to EN 60721-3-6 	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
 Against chemically active substances acc. to EN 60654-4 	Yes; Class 3 (excluding trichlorethylene)
 Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
 Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 	* The supplied plug covers must remain in place over the unused interfaces during operation!
configuration / header	
Configuration software	
• STEP 7	Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203
STEP 7 Lite	No
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
— CFC	Yes

— GRAPH	Yes
— HiGraph®	Yes
Know-how protection	
 User program protection/password protection 	Yes
 Block encryption 	Yes; With S7 block Privacy
Dimensions	
Width	120 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	680 g

last modified: 5/29/2024 **C**