SIEMENS

Data sheet

6ES7314-6EH04-0AB0



SIMATIC S7-300, CPU 314C-2PN/DP Compact CPU with 192 KB work memory, 24 DI/16 DO, 4 AI, 2 AO, 1 Pt100, 4 high-speed counters (60 kHz), 1st interface MPI/DP 12 Mbit/s, 2nd interface Ethernet PROFINET, with 2-port switch, Integr. power supply 24 V DC, Front connector (2x 40-pole) and Micro Memory Card required

General information	
HW functional status	01
Firmware version	V3.3
Product function	
Isochronous mode	Yes; For PROFINET only
Engineering with	
 Programming package 	STEP 7 V5.5 or higher with HSP 191
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines	Miniature circuit breaker, type C; min. 2 A; miniature circuit
(recommendation)	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	
— Rated value (DC)	24 V
- Reverse polarity protection	Yes
Digital outputs	
— Rated value (DC)	24 V
- Reverse polarity protection	No
Input current	250
Current consumption (rated value)	850 mA
Current consumption (in no-load operation), typ.	190 mA 5 A
Inrush current, typ. I²t	0.7 A ² ·s
Digital inputs	0.7 A 'S
	80 mA
 from load voltage L+ (without load), max. Digital outputs 	
	50 mA
 from load voltage L+, max. 	
Power loss	
Power loss, typ.	14 W
Memory	
Work memory	
• integrated	192 kbyte
• expandable	No
 Size of retentive memory for retentive data 	64 kbyte
blocks	
Load memory	
• Plug-in (MMC)	Yes
 Plug-in (MMC), max. 	8 Mbyte
 Data management on MMC (after last 	10 у
programming), min.	
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	
Description	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 DPV1 alarm OBs 	3; OB 55, 56, 57
 Number of isochronous mode OBs 	1; OB 61; only for PROFINET
 Number of startup OBs 	1; OB 100
 Number of asynchronous error OBs 	6; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO)
 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
— lower limit	0
— upper limit	255
— preset	Z 0 to Z 7
Counting range	
— adjustable	Yes
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
•Туре	SFB
Number	Unlimited (limited only by RAM capacity)
S7 times	
Number	256

Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	No retentivity
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
• Туре	SFB
• Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
retentive data area in total	all, max. 64 KB
Flag	
• Number, 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.	32 kbyte; Max. 2048 bytes per block
Address area	
I/O address area	
Inputs	2 048 byte
Outputs	2 048 byte
of which distributed	
— Inputs	2 003 byte
— Outputs	2 010 byte
Process image	
• Inputs	2 048 byte
Outputs	2 048 byte
 Inputs, adjustable 	2 048 byte
Outputs, adjustable	2 048 byte
 Inputs, default 	256 byte
	256 byte
• Outputs, default	200 %)(0
 Outputs, default Default addresses of the integrated channels 	
	136.0 to 138.7

— Analog inputs	800 to 809
— Analog outputs	800 to 803
Subprocess images	
Number of subprocess images, max.	1; With PROFINET IO, the length of the user data is limited to
• Number of Subprocess images, max.	1600 bytes
Digital channels	
• Inputs	16 048
— of which central	1 016
Outputs	16 096
— of which central	1 008
Analog channels	
Inputs	1 006
— of which central	253
Outputs	1 007
— of which central	250
Hardware configuration	
Number of expansion units, max.	3
Number of DP masters	
integrated	1
• via CP	4
Number of operable FMs and CPs (recommended)	
• FM	8
• CP, PtP	8
• CP, LAN	10
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; Typ.: 2 s
 Behavior of the clock following POWER-ON 	Clock continues running after POWER OFF
 Behavior of the clock following expiry of backup 	Clock continues to run with the time at which the power failure
period	occurred
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	
• supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
• to DP, master	Yes; With DP slave only slave clock
• to DP, slave	Yes
● in AS, master	Yes
● in AS, slave	Yes
• on Ethernet via NTP	Yes; As client
Digital inputs	
Number of digital inputs	24
 of which inputs usable for technological functions 	16
integrated channels (DI)	24
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	
● 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 circumstances 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.	1 000 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	
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	
• 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
vertical installation	
— up to 40 °C, max.	2 A
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m
• unshielded, max.	

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. 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 permissible input current for current input (destruction limit), max. 50 mA; Permanent minit, max. 0.5 mA; Permanent voltage for resistance-type transmitter, typ. 3.3 V Constant measurement current for resistance-type transmitter, typ. 3.3 V Technical unit for temperature measurement adjustable 1/25 mA input reges Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ • Voltage Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ • Voltage Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ • Resistance Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ • Resistance for resistance (10 to 10 V) 100 kΩ • Input resistance (10 to 10 V) 100 kΩ • Input resistance (10 to	Analog inputs	
• For resistance thermometer measurement 1 integrated channels (Al) 5, 4x current/voltage, 1x resistance permissible input voltage for current input (destruction limit), max. 5 V; Permanent permissible input current for voltage input (destruction limit), max. 30 V; Permanent permissible input current for voltage input (destruction limit), max. 50 mA; Permanent permissible input current for voltage input (destruction limit), max. 50 mA; Permanent resistance resistance-type transmitter, typ. 3.3 V Constant measurement current for resistance-type transmitter, typ. 3.3 V Ternentitie, typ. 1.25 mA resistance Yes; ±01 V / 100 kΩ; 0 V to 10 V / 100 kΩ resistance Yes; ±20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω e Current Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω e Notage (rated values), voltages Yes • Input resistance (10 to 10 V) Yes • Input resistance (20 mA) Yes • Input resistance (10 mA to 20 mA)	Number of analog inputs	5
integrated channels (A) 5; 4x current/voltage, 1x resistance permissible input voltage for current input (destruction limit), max. 5V: Permanent permissible input voltage for voltage input (destruction limit), max. 30 V; Permanent permissible input voltage for voltage input (destruction limit), max. 0.5 mA; Permanent permissible input current for voltage input (destruction limit), max. 50 mA; Permanent permissible input current for current input (destruction limit), max. 50 mA; Permanent No-load voltage for resistance-type transmitter, typ. 5.3 V Constant measurement current for resistance-type transmitter, typ. 1.25 mA Technical unit for temperature measurement adjustable Yes; 2t0 N/ 100 kΩ; 0 V to 10 V / 100 kΩ e Current Yes; 2t0 N/ 100 kΩ; 0 V to 10 V / 100 kΩ e Current Yes; P1 100 / 10 MΩ e Resistance (but voltage), currents Yes; 0 to 600 Ω / 10 MΩ Input resistance (0 to 10 V) Yes e Input resistance (0 to 10 V) Yes e Input resistance (20 mA to 20 mA) Yes e Input resistance (20 mA to 20 mA) Yes e Input resistance (42 mAites), currents Yes e Input resistance (42 mAites), resistance Yes	 For voltage/current measurement 	4
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. 50 mA; Permanent permissible input current for current input (destruction limit), max. 50 mA; Permanent 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 Fahrenheil / Kelvin 2.5 mA Input reges Yes; ± 10 V / 100 kΩ; 0 V to 10 V / 100 kΩ e Current Yes; 20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω e Resistance thermometer Yes; Pt 100 / 10 MΩ e Resistance (1 to 10 V) Yes; D to 20 mA o + 10 V Yes		1
(destruction limit), max. 30 V; Permanent permissible input current for voltage input 30 V; Permanent (destruction limit), max. 0.5 mA; Permanent permissible input current for current input (destruction limit), max. 50 mA; Permanent 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 ranse Yes; Degrees Celsius / degrees Fahrenheit / Kelvin • Voltage Yes; 20 mA / 100 Ω; 0 wA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω • Resistance thermometer Yes; Pt 100 / 10 MΩ • Resistance Yes; Pt 100 / 10 MΩ • Resistance Yes; Pt 100 / 10 MΩ • Resistance (0 to 10 V) Yes; Pt 100 / 10 MΩ • Pot to 20 mA Yes; O 20 nG 600 Ω / 10 MΩ • Input resistance (0 to 20 mA) Yes • O to 10 V Yes • O to 20 mA Yes • O to 20 mA Yes • Input resistance (10 to 20 mA) Yes • Input resistance (20 mA to +20 mA) Yes	integrated channels (AI)	5; 4x current/voltage, 1x resistance
(destruction limit), max. 0.5 mA; 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 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 adjustable Input ranges Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ • Voltage Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω • Resistance thermometer Yes; 0 Ω to 600 Ω / 10 MΩ • Resistance Yes; 0 Ω to 600 Ω / 10 MΩ Input ranges (rated values), voltages Yes; 0 Ω to 600 Ω / 10 MΩ • 0 to ±10 V Yes • 0 to 20 mA Yes • 1 nput resistance (At m to 20 mA) Y		5 V; Permanent
(destruction limit), max.وار (destruction limit), max.No-load voltage for resistance-type transmitter, typ.3.3 VConstant measurement current for resistance-type transmitter, typ.1.25 mATechnical unit for temperature measurement adjustableVes; Degrees Celsius / degrees Fahrenheit / KelvinInput rangesYes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ• VoltageVes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ• CurrentYes; ±10 V / 100 kΩ; 0 MA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω• Resistance thermometerYes; Pt 100 / 10 MΩ• Resistance thermometerYes; Pt 100 / 10 MΩ• Not 10 V / 100 kQYes; Pt 100 / 10 MΩ• Resistance (b to 10 V)Yes; Pt 100 / 10 MΩ• Input resistance (b to 10 V)Yes; Pt 100 / 10 MΩ• Input resistance (b to 10 V)Yes; Pt 100 / 10 MΩ• Input resistance (b to 20 mA)Yes; O a Cool Ω / 10 MΩ• Input resistance (b to 20 mA)Yes• O to 20 mAYes• Input resistance (-20 mA to +20 mA)Yes• Input resistance (-20 mA to +20 mA)Yes• Input resistance (+20 mA)Yes• Input resistance (+20 mA)Yes• Input resistance (+100)Yes• Input resistance (30 V; Permanent
limit), max.endNo-load voltage for resistance-type transmitter, typ.3.3 VConstant measurement current for resistance-type transmitter, typ.1.25 mATechnical unit for temperature measurement adjustableYes; Degrees Celsius / degrees Fahrenheit / KelvinTechnical unit for temperature measurement adjustableYes; Degrees Celsius / degrees Fahrenheit / KelvinInput rangesYes; 20 mA / 100 k2; 0 V to 10 V / 100 kQFoldageYes; 210 mA / 100 k2; 0 V to 10 V / 100 kQCurrentYes; 220 mA / 100 k2; 0 MA to 20 mA / 100 k2; mA to 20 mA / 100 k0Resistance thermometer e ResistanceYes; P100 / 10 MQPot of 010 VYes; 20 mA / 100 kQe Not of 010 VYes; 20 mA / 100 kQe Not of 010 VYes; 0 mA to 20 mAe Not of 02 0 mAYes; 0 mA to 20 mAe Not of 20 mAYese Not 02 mA </td <td></td> <td>0.5 mA; Permanent</td>		0.5 mA; Permanent
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 Yes; 20 mA / 100 kΩ; 0 V to 10 V / 100 kΩ • Voltage Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ • 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 MΩ Input ranges (rated values), voltages Yes • 0 to +10 V Yes - Input resistance (0 to 10 V) 100 kΩ Input ranges (rated values), currents Yes • 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 Yes - Input resistance (4 mA to 20 mA) 100 Ω Input ranges (rated values), resistonce Yes - Input resistance (Pt 100) Yes		50 mA; Permanent
transmitter, typ. Yes; Degrees Celsius / degrees Fahrenheit / Kelvin adjustable Input ranges Yes; ±10 V/ 100 kΩ; 0 V to 10 V/ 100 kΩ • Voltage 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 thermometer Yes; Pt 100 / 10 MΩ • Resistance Yes; 0 to 600 Ω / 10 MΩ • Resistance Yes; 0 to 600 Ω / 10 MΩ • Input reges (rated values), voltages Yes; 0 to 600 Ω / 10 MΩ • Input resistance (0 to 10 V) Yes • 10 to +10 V Yes • 10 to 20 mA Yes • 10 to 2		3.3 V
adjustable input ranges ivoltage Vest ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ cCurrent 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 thermometer Yes; 0 Ω to 600 Ω / 10 MΩ Input ranges (rated values), voltages Ves; 0 Ω to 600 Ω / 10 MΩ Input resistance (0 to 10 V) YOS O to ±10 V Yes O to ±0 to ±0 V Yes O to ±0 to ±0 UN O Ω Input resistance (0 to 20 mA) Yes O to ±0 D MA O Ω Input resistance (0 to 20 mA) Yes O to ±0 mA O Ω O Ω O Ω O Ω O Ω O Ω O Ω O Ω O Ω O Ω		1.25 mA
• Voltage Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ • 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 MΩ Input ranges (rated values), voltages 100 kΩ • 0 to +10 V Yes • 0 to +10 V 100 kΩ • nput resistance (0 to 10 V) 100 kΩ Input ranges (rated values), currents 100 kΩ • 0 to 20 mA Yes • 10 nput resistance (0 to 20 mA) Yes • 10 nput resistance (-20 mA to +20 mA) Yes • 10 nput resistance (-20 mA to +20 mA) Yes • 10 nput resistance (4 mA to 20 mA) Yes • Ph 100 Yes • Ph 100 Yes • 10 nput resistance (Ph 100) 10 MΩ Input ranges (rated values), resistors Yes • 0 to 600 ohms Yes		Yes; Degrees Celsius / degrees Fahrenheit / Kelvin
· 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; O Ω to 600 Ω / 10 MΩ Input ranges (rated values), voltages Yes; 0 Ω to 600 Ω / 10 MΩ • 0 to +10 V Yes; 0 Ω to 600 Ω / 10 MΩ - Input resistance (0 to 10 V) 100 kΩ Input ranges (rated values), currents Yes • 0 to 20 mA Yes - Input resistance (0 to 20 mA) 100 Ω - 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 (-20 mA to ±20 mA) 100 Ω • 10 mut resistance (4 mA to 20 mA) 100 Ω • 10 mut resistance (4 mA to 20 mA) 100 Ω • Pit 100 Yes - Input resistance (Pt 100) Yes - Input resistance (0 to 600 ohms) Yes	Input ranges	
100 Ω • Resistance thermometer Yes; Pt 100 / 10 MΩ • Resistance Yes; 0 Ω to 600 Ω / 10 MΩ Input ranges (rated values), voltages Yes; 0 Ω to 600 Ω / 10 MΩ • 0 to +10 V Yes • 0 to +10 V Yes • - Input resistance (0 to 10 V) Yes • 0 to 20 mA Yes • - Input resistance (0 to 20 mA) Yes • - Input resistance (0 to 20 mA) Yes • - Input resistance (0 to 20 mA) Yes • - Input resistance (-20 mA to +20 mA) Yes • - Input resistance (-20 mA to +20 mA) Yes • - Input resistance (+ mA to 20 mA) Yes • - Input resistance (+ mA to 20 mA) Yes • - Input resistance (+ mA to 20 mA) Yes • - Input resistance (+ 100) Yes • - Input resistance (Pt 100) Yes • Input resistance (Pt 100) Yes • O to 600 ohms Yes • O to 600 ohms Yes	Voltage	Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ
• Resistance Υes; 0 Ω to 600 Ω / 10 MΩ 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 - Input resistance (0 to 20 mA) Yes - Input resistance (-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 resistance (Pt 100) Yes • Pt 100 Yes - Input resistance (Pt 100) Yes Input resistance (Pt 100) Yes • O to 600 ohms Yes - Input resistance (Pt 100) Yes • O to 600 ohms Yes - Input resistance (Pt 100) Yes • O to 600 ohms Yes - Input resistance (Pt 100) Yes • O to 600 ohms Yes • O to 600 ohms Yes • O to 600 ohms Yes <td>• Current</td> <td></td>	• Current	
Input ranges (rated values), voltages Yes • 0 to +10 V Yes – Input resistance (0 to 10 V) 100 kΩ Input ranges (rated values), currents Yes • 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 • 1nput resistance (4 mA to 20 mA) 100 Ω • Pt 100 Yes – Input resistance (Pt 100) 10 MΩ Input ranges (rated values), resistors 10 MΩ Input resistance (Pt 100) 10 MΩ	Resistance thermometer	Yes; Pt 100 / 10 MΩ
• 0 to +10 VYes- Input resistance (0 to 10 V)100 kΩInput ranges (rated values), currentsYes• 0 to 20 mAYes- Input resistance (0 to 20 mA)100 Ω• -20 mA to +20 mAYes- Input resistance (-20 mA to +20 mA)100 Ω• 4 mA to 20 mAYes- Input resistance (4 mA to 20 mA)100 ΩInput ranges (rated values), resistance thermometer100 ΩInput ranges (rated values), resistance thermometer100 ΩInput ranges (rated values), resistance thermometer100 Ω• Pt 100Yes- Input resistance (Pt 100)10 MΩInput ranges (rated values), resistors10 MΩ• 0 to 600 ohmsYes- Input resistance (0 to 600 ohms)10 MΩ	Resistance	Yes; 0 Ω to 600 Ω / 10 $M\Omega$
Input resistance (0 to 10 V)100 kΩInput ranges (rated values), currentsYes• 0 to 20 mAYes Input resistance (0 to 20 mA)100 Ω• -20 mA to +20 mAYes Input resistance (-20 mA to +20 mA)100 Ω• 4 mA to 20 mAYes Input resistance (4 mA to 20 mA)100 ΩInput ranges (rated values), resistance thermometer100 Ω• Pt 100Yes Input resistance (Pt 100)10 MΩInput ranges (rated values), resistors0 MΩ• 0 to 600 ohmsYes Input resistance (0 to 600 ohms)10 MΩ	Input ranges (rated values), voltages	
Input ranges (rated values), currents Yes • 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 Yes • Pt 100 Yes - Input resistance (Pt 100) Yes Input ranges (rated values), resistors 10 MΩ Input ranges (rated values), resistors 10 MΩ Input ranges (rated values), resistors 10 MΩ	• 0 to +10 V	Yes
• 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 resistance (4 mA to 20 mA) 100 Ω Input resistance (4 mA to 20 mA) 100 Ω Input resistance (4 mA to 20 mA) 100 Ω Input resistance (4 mA to 20 mA) 100 Ω Input resistance (4 mA to 20 mA) 100 Ω Input resistance (4 mA to 20 mA) 100 Ω Input resistance (4 mA to 20 mA) 100 Ω Input resistance (4 mA to 20 mA) Yes • Pt 100 Yes - Input resistance (Pt 100) 10 MΩ Input resistance (Pt 100) Yes • 0 to 600 ohms Yes • 0 to 600 ohms Yes - Input resistance (0 to 600 ohms) 10 MΩ	— Input resistance (0 to 10 V)	100 kΩ
- Input resistance (0 to 20 mA)100 Ω• -20 mA to +20 mAYes- Input resistance (-20 mA to +20 mA)100 Ω• 4 mA to 20 mAYes- Input resistance (4 mA to 20 mA)100 ΩInput resistance (7 to 0)Yes• Pt 100Yes- Input resistance (Pt 100)10 MΩInput resistance (0 to 600 ohms)Yes	Input ranges (rated values), currents	
• -20 mA to +20 mAYes- Input resistance (-20 mA to +20 mA)100 Ω• 4 mA to 20 mAYes- Input resistance (4 mA to 20 mA)100 ΩInput ranges (rated values), resistance thermometer100 Ω• Pt 100Yes- Input resistance (Pt 100)10 MΩInput ranges (rated values), resistors10 MΩ• 0 to 600 ohmsYes- Input resistance (0 to 600 ohms)10 MΩ	• 0 to 20 mA	Yes
Input resistance (-20 mA to +20 mA)100 Ω• 4 mA to 20 mAYes Input resistance (4 mA to 20 mA)100 ΩInput ranges (rated values), resistance thermometer• Pt 100• Pt 100Yes Input resistance (Pt 100)10 MΩInput ranges (rated values), resistors• Q to 600 ohms• 0 to 600 ohmsYes Input resistance (0 to 600 ohms)10 MΩ	— Input resistance (0 to 20 mA)	100 Ω
• 4 mA to 20 mAYes- Input resistance (4 mA to 20 mA)100 ΩInput ranges (rated values), resistance thermometerYes• Pt 100Yes- Input resistance (Pt 100)10 MΩInput ranges (rated values), resistorsYes• 0 to 600 ohmsYes- Input resistance (0 to 600 ohms)10 MΩ	• -20 mA to +20 mA	Yes
— Input resistance (4 mA to 20 mA)100 ΩInput ranges (rated values), resistance thermometer• Pt 100Yes— Input resistance (Pt 100)10 MΩInput ranges (rated values), resistors• 0 to 600 ohmsYes— Input resistance (0 to 600 ohms)10 MΩ	— Input resistance (-20 mA to +20 mA)	100 Ω
Input ranges (rated values), resistance thermometer • Pt 100 Yes — Input resistance (Pt 100) 10 MΩ Input ranges (rated values), resistors 10 MΩ • 0 to 600 ohms Yes — Input resistance (0 to 600 ohms) 10 MΩ	• 4 mA to 20 mA	Yes
• Pt 100 Yes — Input resistance (Pt 100) 10 MΩ Input ranges (rated values), resistors 10 kΩ • 0 to 600 ohms Yes — Input resistance (0 to 600 ohms) 10 MΩ	— Input resistance (4 mA to 20 mA)	100 Ω
— Input resistance (Pt 100) 10 MΩ Input ranges (rated values), resistors • 0 to 600 ohms Yes — Input resistance (0 to 600 ohms) 10 MΩ	Input ranges (rated values), resistance thermometer	
Input ranges (rated values), resistors • 0 to 600 ohms Yes — Input resistance (0 to 600 ohms) 10 MΩ	• Pt 100	Yes
• 0 to 600 ohms Yes — Input resistance (0 to 600 ohms) 10 MΩ	— Input resistance (Pt 100)	10 MΩ
- Input resistance (0 to 600 ohms) $10 \text{ M}\Omega$	Input ranges (rated values), resistors	
	• 0 to 600 ohms	Yes
Thermocouple (TC)	— Input resistance (0 to 600 ohms)	10 ΜΩ
	Thermocouple (TC)	

noromotorizoblo	No	
— parameterizable Characteristic linearization		
	Yes; by software	
parameterizable	-	
— 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	
	Yes	
for current output two-wire connection	1 65	
Load impedance (in rated range of output)	1 kΩ	
• with voltage outputs, min.		
• with voltage outputs, capacitive load, max.	0.1 µF	
 with current outputs, max. 	300 Ω	
 with current outputs, inductive load, max. 	0.1 mH	
Destruction limits against externally applied voltages an		
 Voltages at the outputs towards MANA 	16 V; Permanent	
• Current, max.	50 mA; Permanent	
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), 	12 bit	
max.		
 Integration time, parameterizable 	Yes; 16.6 / 20 ms	
 Interference voltage suppression for 	50 / 60 Hz	
interference frequency f1 in Hz		
• permissible input frequency, max.	400 Hz	



 Time constant of the input filter 	0.38 ms
 Basic execution time of the module (all 	1 ms
channels released)	
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
 Resolution with overrange (bit including sign), 	12 bit
max.	
 Conversion time (per channel) 	1 ms
Settling time	
 for resistive load 	0.6 ms
 for capacitive load 	1 ms
• for inductive load	0.5 ms
Encoder	
Connection of signal encoders	
 for voltage measurement 	Yes
 for current measurement as 2-wire transducer 	Yes; with external supply
 for current measurement as 4-wire transducer 	Yes
 for resistance measurement with two-wire connection 	Yes; Without compensation of the line resistances
 for resistance measurement with three-wire connection 	No
 for resistance measurement with four-wire connection 	No
Connectable encoders	
2-wire sensor	Yes
	1.5 mA
 permissible quiescent current (2-wire sensor), max. 	1.5 11A
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

 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
 1 %

 • 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 = interference 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	1; 2 ports (switch) RJ45	
Number of PROFINET interfaces	1; 2 ports (switch) RJ45	
Number of RS 485 interfaces	1; Combined MPI / PROFIBUS DP	
Number of RS 422 interfaces	0	
1. Interface	Integrated RS 485 interface	
Interface type	Integrated RS 485 interface RS 485	
Interface type Physics	RS 485	
Interface type Physics Isolated	-	
Interface type Physics	RS 485 Yes	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max.	RS 485 Yes	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Protocols	RS 485 Yes 200 mA	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI	RS 485 Yes 200 mA Yes	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave	RS 485 Yes 200 mA Yes Yes	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master	RS 485 Yes 200 mA Yes Yes Yes	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection	RS 485 Yes 200 mA Yes Yes Yes	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI	RS 485 Yes 200 mA Yes Yes Yes No	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max.	RS 485 Yes Yes Yes Yes No	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max. Services	RS 485 Yes 200 mA Yes Yes Yes No	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max. Services — PG/OP communication	RS 485 Yes 200 mA Yes Yes Yes No 12 Mbit/s	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max. Services — PG/OP communication — Routing	RS 485 Yes 200 mA Yes Yes Yes No 12 Mbit/s Yes Yes	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max. Services — PG/OP communication — Routing — Global data communication	RS 485 Yes 200 mA Yes Yes Yes No 12 Mbit/s Yes Yes Yes Yes	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication	RS 485 Yes 200 mA Yes Yes Yes No 12 Mbit/s Yes Yes Yes Yes Yes	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client	RS 485 Yes 200 mA Yes Yes Yes Yes No 12 Mbit/s Yes Yes	
Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication	RS 485 Yes 200 mA Yes Yes Yes No 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes	

 Transmission rate, max. 	12 Mbit/s
 Number of DP slaves, max. 	124
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	Yes; I blocks only
— S7 communication	Yes
- S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	No
	Yes
— Activation/deactivation of DP slaves	Yes
 — Number of DP slaves that can be simultaneously activated/deactivated, max. 	8
 — Direct data exchange (slave-to-slave communication) 	Yes; as subscriber
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
PROFIBUS DP slave	
 Transmission rate, max. 	12 Mbit/s
 automatic baud rate search 	Yes; only with passive interface
 Address area, max. 	32
• User data per address area, max.	32 byte
Services	
— PG/OP communication	Yes
— Routing	Yes; Only with active interface
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
- S7 communication, as client	No
— S7 communication, as server	Yes; Connection configured on one side only
 — Direct data exchange (slave-to-slave communication) 	Yes
— DPV1	No
Transfer memory	

— Inputs	244 byte
— Outputs	244 byte
2. Interface	
Interface type	PROFINET
Physics	Ethernet RJ45
Isolated automatic detection of transmission rate	
	Yes; 10/100 Mbit/s Yes
Autonegotiation Autocrossing	Yes
Change of IP address at runtime, supported	Yes
Interface types	165
Number of ports	2
	2 Yes
integrated switch	
Protocols	No
PROFINET IO Controller	Yes; Also simultaneously with IO-Device functionality
PROFINET IO Device	Yes; Also simultaneously with IO Controller functionality
• PROFINET CBA	Yes
PROFIBUS DP master	No
PROFIBUS DP slave	No
Open IE communication	Yes; Via TCP/IP, ISO on TCP, and UDP
Web server	Yes
Media redundancy	Yes
PROFINET IO Controller	
• Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— S7 communication	Yes; With loadable FBs, max. configurable connections: 10, max. number of instances: 32
— Isochronous mode	Yes; OB 61
— IRT	Yes
— Shared device	Yes
— Prioritized startup	Yes
— Number of IO devices with prioritized	32
startup, max.	
— Number of connectable IO Devices, max.	128
— Of which IO devices with IRT, max.	64
— of which in line, max.	64
 — Number of IO Devices with IRT and the option "high flexibility" 	128
— of which in line, max.	61

Number of connectable IO Devices for DT	128
 — Number of connectable IO Devices for RT, max. 	120
— of which in line, max.	128
— Activation/deactivation of IO Devices	Yes
— Number of IO Devices that can be	8
simultaneously activated/deactivated, max.	
— IO Devices changing during operation	Yes
(partner ports), supported	
— Number of IO Devices per tool, max.	8
 Device replacement without swap medium 	Yes
— Send cycles	250 $\mu s,$ 500 $\mu s,$ 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option)
— Updating time	250 μs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, technical Data" for more details)
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
— User data consistency, max.	1 024 byte
PROFINET IO Device	
Services	
— PG/OP communication	Yes
— Routing	Yes
— S7 communication	Yes; With loadable FBs, max. configurable connections: 10, max. number of instances: 32
— Isochronous mode	No
— IRT	Yes
— PROFlenergy	Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device
— Shared device	Yes
— Number of IO Controllers with shared	2
device, max.	
Transfer memory	
— Inputs, max.	1 440 byte; Per IO Controller with shared device
— Outputs, max.	1 440 byte; Per IO Controller with shared device
Submodules	
— Number, max.	64
— User data per submodule, max.	1 024 byte
PROFINET CBA	
acyclic transmission	Yes
cyclic transmission	Yes
Open IE communication	
 Number of connections, max. 	8

PNAP

- Local port numbers used at the system end
- Keep-alive function, supported

0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535

Redundancy mode Media redundancy - Switchover time on line break, typ. 200 ms; PROFINET MRP - Number of stations in the ring, max. 50 Open IE communication Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length for connection type 01H, max. 1 460 byte - Data length for connections per port, supported Yes - Number of connections, max. 8 - Data length, max. 22 768 byte - Number of connections, max. 8 - Data length, max. 32 768 byte - Number of connections, max. 8 - Data length, max. 1472 byte VBDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 1472 byte Web server Ves; via integrated PROFINET interface and loadable FBs • supported Yes • supported Yes • Suported Yes • Suported Yes • Suported Yes • Suported Yes Communication functions Yes </th <th>• Reep-airve function, supported</th> <th></th>	• Reep-airve function, supported	
Media redundancy 200 ms; PROFINET MRP - Switchover time on line break, typ. 50 Open IE communication 50 - Number of stations in the ring, max. 8 - NUmber of connections, max. 8 - Data length for connection type 01H, max. 1460 byte - Data length for connections per port, supported Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 1460 byte - several passive connections per port, supported Yes - Number of connections, max. 8 - Data length, max. 1472 byte - Number of connections, max. 8 - Data length, max. 1472 byte Web server - - Number of connections, max. 8 - Data length, max. 1472 byte Web server - - Supported Yes - Number of polication synchronized up to terminal) Yes Sochronous operation (application synchronized up to terminal) Yes Sochronous operation (application synchronized up to terminal) Yes Global data communication Yes	Protocols	
Switchover time on line break, typ.200 ms; PROFINET MRP Number of stations in the ring, max.50Open IE communicationYes; via integrated PROFINET interface and loadable FBs Number of connections, max.8 Data length for connection type 01H, max.32 768 byte Data length for connection type 11H, max.32 768 byte several passive connection type 11H, max.32 768 byte several passive connections per port, supportedYes; via integrated PROFINET interface and loadable FBs Number of connections, max.8 Data length, max.32 768 byte Data length, max.32 768 byte Data length, max.32 768 byte Data length, max.1472 byteWeb serverYes; via integrated PROFINET interface and loadable FBs Number of connections, max.8 Data length, max.1472 byteWeb serverYes; via integrated PROFINET interface and loadable FBs SupportedYes; Sechronous operation (application synchronized up) Number of HTTP clients5 Sourous operation (application synchronized up)Yes; For PROFINET only bata record routingYes Boda ta communicationYes Boda ta communicationYes Boda ta communicationYes; For PROFINET only Data record routingYes SupportedYes SupportedYes Boda ta communication8 Supported8 Suported8 Sup	Redundancy mode	
Number of stations in the ring, max. 50 Open IE communication * • TCP/IP Yes; via integrated PROFINET interface and loadable FBs Number of connections, max. 8 Data length for connection type 01H, max. 1 460 byte Data length for connection type 11H, max. 32 768 byte several passive connections per port, supported Yes ISO-on-TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs Number of connections, max. 8 Data length, max. 32 768 byte Data length, max. 32 768 byte Data length, max. 8 Data length, max. 8 Data length, max. 1472 byte VUDP Yes; via integrated PROFINET interface and loadable FBs Number of connections, max. 8 Data length, max. 1472 byte Veb server Supported Yes; Number of HTTP clients 5 Sochronous operation (application synchronized up to terminal) Yes; For PROFINET only Communication Yes; Data record routing Yes; Opta learcord routing Yes; Obtal data communication Yes Supported Yes	Media redundancy	
Open IE communication Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length for connection type 01H, max. 1 460 byte - Data length for connection type 01H, max. 32 768 byte - Data length for connections per port, supported Yes; via integrated PROFINET interface and loadable FBs - Several passive connections, max. 8 - Data length, max. 32 768 byte - Sourch (RFC1006) Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte - UDP Yes; via integrated PROFINET interface and loadable FBs - Data length, max. 142 byte - Data length, max. 142 byte Web server - supported Yes; - Number of HTTP clients Sochronous operation (application synchronized up to terminal) Communication Yes; For PROFINET only Constection functions <t< td=""><td>— Switchover time on line break, typ.</td><td>200 ms; PROFINET MRP</td></t<>	— Switchover time on line break, typ.	200 ms; PROFINET MRP
• TCP/IP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length for connection type 01H, max. 1 460 byte - Data length for connection type 11H, max. 32 768 byte - several passive connections per port, supported Yes - Stool CP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte - UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte - UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 1472 byte Web server - • Supported Yes • Number of HTTP clients 5 schornorus operation (application synchronized up test integrated PROFINET only Ves - Schornorus operation (application synchronized up test integrated PROFINET only Communication Yes Data record routing Yes <	— Number of stations in the ring, max.	50
- Number of connections, max.8- Data length for connection type 01H, max.1460 byte- Data length for connection type 11H, max.32 768 byte- several passive connections per port, supportedYes• ISO-on-TCP (RFC1006)Yes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.32 768 byte• UDPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.1472 byte• UDPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.1472 byteWeb serverYes• SupportedYes• SupportedYes• Number of HTTP clients5cohronous operation (application synchronized up to terminal)YesPG/OP communicationYes• SupportedYes• SupportedYes• SupportedYes• SupportedYes• Number of GD loops, max.8• Number of GD loops, max.8• Number of GD packets, transmitter, max.	Open IE communication	
Data length for connection type 01H, max.1 460 byteData length for connection type 11H, max.32 768 byte- several passive connections per port, supportedYes• ISO-on-TCP (RFC1006)Yes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.32 768 byte• UDPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.32 768 byte• UDPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.1472 byteWeb serverYes• SupportedYes• SupportedYes• SupportedYes; For PROFINET only• Number of HTTP clients5Sochronous operation (application synchronized up to terminal)Yes; For PROFINET onlyCommunication functionsYesPG/OP communicationYesData record routingYesSupportedYes• Number of GD loops, max.8• Number of GD packets, max.8• Number of GD packets, max.8• Number of GD packets, ransmitter, max.8• Number of GD packets, receiver, max.8• Number of GD packets, receiver, max.8	• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
- Data length for connection type 11H, max.32 768 byte- several passive connections per port, supportedYes• ISO-on-TCP (RFC1006)Yes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.32 768 byte• UDPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.32 768 byte• UDPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.1472 byteWeb server1472 byte• SupportedYes• SupportedYes• Number of HTTP clients5Sochronous operation (application synchronized up to terminal)Yes; For PROFINET onlyPG/OP communicationYesPG/OP communicationYes• supportedYes• supportedYes• supportedYes• supportedYesPG/OP communicationYes• supportedYes• supportedYes• Number of GD loops, max.8• Number of GD packets, max.8• Number of GD packets, ransmitter, max.8• Number of GD packets, receiver, max.8• Number of GD packets, receiver, max.8	— Number of connections, max.	8
	 — Data length for connection type 01H, max. 	1 460 byte
supported A supported Ves; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 1472 byte Web server 1472 byte • Supported Yes • Supported Yes • Number of HTTP clients 5 sochronous operation (application synchronized up to terminal) Yes; For PROFINET only Communication Yes Global data communication Yes • Supported Yes • Supported Yes Global data communication Yes • Number of GD loops, max. 8 • Number of GD packets, transmitter, max. 8 • Number of GD packets, transmitter, max. 8	 Data length for connection type 11H, max. 	32 768 byte
- Number of connections, max.8- Data length, max.32 768 byte• UDPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.1472 byteWeb serverYes• supportedYes• User-defined websitesYes• Number of HTTP clients5Sochronous operation (application synchronized up to terminal)Yes; For PROFINET onlyPG/OP communicationYesPG/OP communicationYes• supportedYes• supportedYesPG/OP communicationYesPG/OP communicationYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• Number of GD loops, max.8• Number of GD packets, transmitter, max.8• Number of GD packets, transmitter, max.8• Number of GD packets, receiver, max.8• Number of GD packets, receiver, max.8		Yes
Inductor of one connections, max.32 768 byte• UDPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.1 472 byteWeb serverYes• supportedYes• User-defined websitesYes• Number of HTTP clients5sochronous operation (application synchronized up to terminal)Yes; For PROFINET onlycommunication functionsYesPG/OP communicationYesGlobal data communicationYes• supportedYes• supportedYesMumber of GD loops, max.8• Number of GD packets, transmitter, max.8• Number of GD packets, receiver, max.8• Number of GD packets, receiver, max.8	• ISO-on-TCP (RFC1006)	Yes; via integrated PROFINET interface and loadable FBs
• UDPYes; via integrated PROFINET interface and loadable FBs Number of connections, max.8 Data length, max.1 472 byteWeb serverYes• supportedYes• User-defined websitesYes• Number of HTTP clients5Sochronous operation (application synchronized up to terminal)PG/OP communicationYes; For PROFINET onlyOperation functionsPG/OP communicationYesObsolute at a communicationYesObsolute at a communicationYesIsoportedYesOutput defined for D packets, max.8• Number of GD packets, transmitter, max.8• Number of GD packets, receiver, max.8	— Number of connections, max.	8
Number of connections, max.8 Data length, max.1472 byteWeb server• supportedYes• SupportedYes• Number of HTTP clients5Sochronous operation (application synchronized up to terminal)Yes; For PROFINET onlyCommunication functionsPG/OP communicationYesData record routingYesGlobal data communicationYes• supportedYes• 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	— Data length, max.	32 768 byte
Data length, max.1 472 byteWeb serverYes• supportedYes• User-defined websitesYes• Number of HTTP clients5sochronous nodeYes; For PROFINET onlysochronous operation (application synchronized up to terminal)Yes; For PROFINET onlyCommunication functionsYesPG/OP communicationYesData record routingYesOblad data communicationYesI supportedYes• supportedYes• Number of GD loops, max.8• Number of GD packets, max.8• Number of GD packets, transmitter, max.8• Number of GD packets, transmitter, max.8• Number of GD packets, receiver, max.8	• UDP	Yes; via integrated PROFINET interface and loadable FBs
Web server Yes • supported Yes • User-defined websites Yes • Number of HTTP clients 5 sochronous mode Yes; For PROFINET only Isochronous operation (application synchronized up to terminal) Yes; For PROFINET only Communication functions Yes PG/OP communication Yes Data record routing Yes Global data communication Yes • 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	— Number of connections, max.	8
• supportedYes• User-defined websitesYes• Number of HTTP clients5sochronous modeIsochronous operation (application synchronized up to terminal)Yes; For PROFINET onlyCommunication functionsYesPG/OP communicationYesData record routingYesGlobal data communicationYes• supportedYes• supportedYes• Number of GD loops, max.8• Number of GD packets, max.8• Number of GD packets, transmitter, max.8• Number of GD packets, transmitter, max.8• Number of GD packets, receiver, max.8	— Data length, max.	1 472 byte
• User-defined websitesYes• Number of HTTP clients5sochronous operation (application synchronized up to terminal)Yes; For PROFINET onlyCommunication functionsYesPG/OP communicationYesData record routingYesGlobal data communicationYes• supportedYes• Number of GD loops, max.8• Number of GD packets, max.8• Number of GD packets, transmitter, max.8• Number of GD packets, transmitter, max.8• Number of GD packets, receiver, max.8	Web server	
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sochronous mode Isochronous operation (application synchronized up to terminal) Yes; For PROFINET only Communication functions PG/OP communication Yes Data record routing Yes Global data communication Yes • supported Yes • Number of GD loops, max. 8 • Number of GD packets, max. 8 • Number of GD packets, receiver, max. 8	 User-defined websites 	Yes
Isochronous operation (application synchronized up to terminal) Yes; For PROFINET only Communication functions Yes PG/OP communication Yes Data record routing Yes Global data communication Yes • 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	Number of HTTP clients	5
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Communication functions Yes PG/OP communication Yes Data record routing Yes Global data communication Yes • 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		Yes; For PROFINET only
PG/OP communicationYesData record routingYesGlobal data communicationYes• supportedYes• 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	to terminal)	
Data record routingYesGlobal data communicationYes• supportedYes• 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	Communication functions	
Global data communication• supportedYes• 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		Yes
• supportedYes• 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		Yes
 Number of GD loops, max. Number of GD packets, max. Number of GD packets, transmitter, max. Number of GD packets, receiver, max. 	Global data communication	
• Number of GD packets, max.8• Number of GD packets, transmitter, max.8• Number of GD packets, receiver, max.8		Yes
 Number of GD packets, transmitter, max. Number of GD packets, receiver, max. 	 Number of GD loops, max. 	8
Number of GD packets, receiver, max.	 Number of GD packets, max. 	8
	 Number of GD packets, transmitter, max. 	8
• Size of GD packets, max. 22 byte	 Number of GD packets, receiver, max. 	8
	 Size of GD packets, max. 	
Size of GD packet (of which consistent), max. 22 byte	 Size of GD packet (of which consistent), max. 	22 byte
S7 basic communication	S7 basic communication	
• supported Yes	• supported	Yes

Yes

• User data per job (of which consisten), max. 76 byte; 76 bytes (with X_SEND or X_RCV); 64	• Lloor data nor ich mov	76 byte
SP communication X_PUT or X_GET as server) 9 supported Yes • as server Yes • as client CP and loadable FB • User data per job, max. See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFOs/FCs of S7 Communication) S5 compatible communication Yes; via CP and loadable FC PROFINET CBA (at set setpoint communication load 50 % • Number of functions, master/slave 30 • Total of all master/slave connections 1000 • Data length of all incoming connections 4000 byte master/slave, max. 4000 byte • Data length of device-internal and PROFIBUS interconnections with acyclic transmission 500 ms • Data length of device-internal and PROFIBUS interconnections with acyclic transmission 500 ms • Data length of device-internal and PROFIBUS interconnections with acyclic transmission 500 ms • Data length of device-internal and PROFIBUS interconnections with acyclic transmission 500 ms • Data length of all outgoing interconnections 100 • Data length of all outgoing interconnections 2000 byte • Data length of all outgoing interconnections 2000 byte • Interconn	User data per job, max.	
S7 communication Yes • supported Yes • as client Yes via integrated PROFINET interface and loadable FB or via CP and loadable FB • User data per job, max. See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication) S5 compatible communication load FROFINET CBA (at set setpoint communication load • Supported Yes; via CP and loadable FC PROFINET CBA (at set setpoint communication load 50 % • Number of functions, master/slave 30 • Total of all master/slave, max. 1000 • Data length of all incoming connections 4000 byte master/slave, max. 500 • Data length of all outgoing connections 4000 byte master/slave, max. 500 • Data length of all outgoing interconnections 4000 byte interconnections, max. 1400 byte • Data length of all incoming interconnections 100 • Data length of all incoming 2000 byte	• User data per job (or which consistent), max.	
is server Yes Yes Action of CPU and loadable FB is server in the server is a client in the contract of the SFBs/FBs and of the SFCs/FCs of S7 Communication is server in the SFCs/FCs of S7 Communication is and of the SFCs/FCs of S7 Communication is and of the SFCs/FCs of S7 Communication is server in the SFDs/FCs of S7 Communication is and of the SFCs/FCs of S7 Communication is server in the SFDs/FCs of S7 Communication is and of the SFCs/FCs of S7 Communication is a set is and of the SFCs/FCs of S7 Communication is a set is and of the SFCs/FCs of S7 Communication is a set is and of the SFCs/FCs of S7 Communication is a set is and of the SFCs/FCs of S7 Communication is and set is an	S7 communication	
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CP and loadable FB • User data per job, max. See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication) S5 compatible communication ves; via CP and loadable FC PROFINET CBA (at set setpoint communication load) Ferror (shared parameters of the SFCs/FCs of S7 Communication) Setpoint for the CPU communication load) 50 %. • Number of remote interconnection partners 32 • Number of functions, master/slave 30 • Total of all master/slave connections 1000 • Data length of all loconing connections 4000 byte master/slave, max. - • Data length of all outgoing connections 4000 byte interconnections max. - • Data length of all outgoing connections 4000 byte interconnections max. - • Data length of all outgoing iconnections 4000 byte interconnections, max. - • Data length of all incoming interconnections 100 • Data length of all incoming interconnections 100 • Data length of all incoming interconnections 2000 byte • Interconnections, max. -	• as server	Yes
and of the SFCs/FCs of S7 Communication) S5 compatible communication • supported Yes; via CP and loadable FC PROFINET CBA (at set setpoint communication load 50 % • Number of remote interconnection partners 32 • Number of functions, master/slave 30 • Total of all master/slave connections 1000 • Data length of all incoming connections 4000 byte master/slave, max. 500 • Number of device-internal and PROFIBUS interconnections, max. 4000 byte • Data length of device-internal and PROFIBUS interconnections, max. 1400 byte • Data length of outgoing interconnections 1000 • Data length of outgoing interconnections 1000 byte • Data length of outgoing interconnections, max. 1400 byte • Data length of outgoing interconnections 100 • Number of incoming interconnections 100 • Number of outgoing interconnections 100 • Data length of all incoming 2000 byte interconnections, max. 2000 byte • Data length of all incoming 2000 byte interconnections, max. 1400 byte <t< td=""><td>● as client</td><td></td></t<>	● as client	
• supported Yes; via CP and loadable FC PROFINET CBA (at set setpoint communication load 50 % • Number of remote interconnection partners 32 • Number of functions, master/slave 30 • Total of all master/slave connections 1 000 • Data length of all incoming connections 4 000 byte master/slave, max. 4 000 byte • Number of device-internal and PROFIBUS interconnections, max. 500 • Data length of all outgoing connections 4 000 byte master/slave, max. 500 • Number of device-internal and PROFIBUS interconnections, max. 1 400 byte • Data length of device-internal und PROFIBUS interconnections, max. 1 400 byte • Data length of device-internal und PROFIBUS interconnections interconnections interconnections 100 • Data length of all incoming interconnections 100 - Sampling interval, min. 500 ms - Number of outgoing interconnections 100 - Data length of all outgoing interconnections 100 - Data length of all incoming interconnections 100 - Data length of all outgoing interconnections, max. 1400 byte - Data length of	• User data per job, max.	
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Number of functions, master/slave30Total of all master/slave connections1000Data length of all incoming connections4 000 bytemaster/slave, max.4 000 byte• Data length of all outgoing connections4 000 bytemaster/slave, max.500• Number of device-internal and PROFIBUS500interconnections7 000 byte• Data length of device-internal und PROFIBUS4 000 byte• Data length of device-internal und PROFIBUS4 000 byte• Data length of device-internal und PROFIBUS4 000 byte• Data length of connections, max.1 400 byte• Data length of connections with acyclic transmission500 ms- Number of incoming interconnections100- Number of outgoing interconnections100- Number of all incoming interconnections100- Data length of all outgoing2 000 byteinterconnections, max.1 400 byte- Data length of all outgoing2 000 byteinterconnections, max.1 00 ms- Data length of all outgoing2 000 byteinterconnections, max.1 00 ms- Data length of interconnections200- Number of incoming interconnections200- Number of incoming interconnections200- Number of outgoing interconnections200- Number of outgoing interconnections200- Number of outgoing interconnections200- Number of outgoing interconnections200- Data length of all incoming2000 byte- Data lengt	 Setpoint for the CPU communication load 	50 %
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• Data length of all incoming connections 4 000 byte master/slave, max. - • Data length of all outgoing connections 4 000 byte master/slave, max. - • Number of device-internal and PROFIBUS 500 interconnections - • Data length of device-internal und PROFIBUS 4 000 byte interconnections, max. 1 400 byte • Data length per connection, max. 1 400 byte • Sampling interval, min. 500 ms - Number of incoming interconnections 100 - Number of all incoming 2 000 byte interconnections, max. 2 000 byte - Data length of all incoming 2 000 byte interconnections, max. 1 400 byte - Data length of all outgoing 2 000 byte interconnections, max. 1 00 - Data length of all outgoing 2 000 byte interconnections, max. 1 400 byte - Data length of all outgoing 1 400 byte - Data length of all outgoing interconnections 1 400 byte - Data length of incoming interconnections 200 - Transmission frequency: Transmission frequency: Transmission	 Number of functions, master/slave 	30
master/slave, max. 4 000 byte • Data length of all outgoing connections master/slave, max. 4 000 byte • Number of device-internal and PROFIBUS interconnections 500 • Data length of device-internal und PROFIBUS interconnections, max. 4 000 byte • Data length per connection, max. 1 400 byte - Sampling interval, min. 500 ms - Number of outgoing interconnections 100 - Number of outgoing interconnections 100 - Number of outgoing interconnections 100 - Data length of all incoming interconnections, max. 2 000 byte - Data length of all outgoing interconnections, max. 1 400 byte - Data length of all outgoing interconnections, max. 1 400 byte - Data length of all outgoing interconnections, max. 1 400 byte - Data length of all outgoing interconnections, max. 1 400 byte - Data length of all outgoing interconnections with cyclic transmission 10 ms - Transmission frequency: Transmission interval, min. 200 - Number of outgoing interconnections 200 - Number of outgoing interconnections 200 - Data length of all incoming interconnections, max. 200 - Data length of all incoming interconnections, max. 200 - Data length of all incoming interconnections, max. 2000 byte	 Total of all master/slave connections 	1 000
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- Data length of all incoming interconnections, max.2 000 byte- Data length of all outgoing interconnections, max.2 000 byte- Data length per connection, max.1 400 byte- Data length per connection, max.1 400 byte- Data length per connection, max.1 0 ms- Transmission frequency: Transmission interval, min.200- Number of incoming interconnections200- Number of outgoing interconnections200- Data length of all incoming interconnections, max.200- Data length of all incoming interconnections, max.200- Data length of all incoming interconnections, max.200 byte- Data length of all incoming interconnections, max.200 byte- Data length of all incoming interconnections, max.200 byte	- Number of incoming interconnections	100
interconnections, max.2 000 byte— Data length of all outgoing interconnections, max.2 000 byte— Data length per connection, max.1 400 byte— Data length per connection, max.1 400 byteRemote interconnections with cyclic transmission interval, min.10 ms— Transmission frequency: Transmission interval, min.200— Number of incoming interconnections200— Number of outgoing interconnections200— Data length of all incoming interconnections, max.200— Data length of all outgoing2 000 byte	 — Number of outgoing interconnections 	100
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Remote interconnections with cyclic transmission 10 ms — Transmission frequency: Transmission interval, min. 10 ms — Number of incoming interconnections 200 — Number of outgoing interconnections 200 — Data length of all incoming interconnections 200 byte — Data length of all outgoing 2 000 byte		2 000 byte
— Transmission frequency: Transmission interval, min.10 ms— Number of incoming interconnections200— Number of outgoing interconnections200— Data length of all incoming interconnections, max.2 000 byte— Data length of all outgoing2 000 byte	— Data length per connection, max.	1 400 byte
interval, min. 200 — Number of incoming interconnections 200 — Number of outgoing interconnections 200 — Data length of all incoming interconnections, max. 2 000 byte — Data length of all outgoing 2 000 byte	Remote interconnections with cyclic transmission	
Number of outgoing interconnections 200 Data length of all incoming interconnections, max. 2 000 byte Data length of all outgoing 2 000 byte		10 ms
— Data length of all incoming 2 000 byte interconnections, max. 2 000 byte — Data length of all outgoing 2 000 byte	- Number of incoming interconnections	200
interconnections, max. — Data length of all outgoing 2 000 byte	- Number of outgoing interconnections	200
		2 000 byte
	 Data length of all outgoing interconnections, max. 	2 000 byte

 Data length per connection, max. 	450 byte
HMI variables via PROFINET (acyclic)	
— Number of stations that can log on for HMI variables (PN OPC/iMap)	3; 2x PN OPC/1x iMap
— HMI variable updating	500 ms
— Number of HMI variables	200
— Data length of all HMI variables, max.	2 000 byte
PROFIBUS proxy functionality	
— supported	Yes
 — Number of linked PROFIBUS devices 	16
— Data length per connection, max.	240 byte; Slave-dependent
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
 usable for S7 communication 	10
- reserved for S7 communication	0
— adjustable for S7 communication, min.	0
— adjustable for S7 communication, max.	10
 total number of instances, max. 	32
 usable for routing 	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.
S7 message functions	
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
Test 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
	14
Forcing	Yes
Forcing	
• 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
Interrupts/diagnostics/status information	
Diagnostics indication LED	
 Status indicator digital input (green) 	Yes
 Status indicator digital output (green) 	Yes
Integrated Functions	
Number of counters	4; See "Technological Functions" manual
Counting frequency (counter) max.	60 kHz
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
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	600 V DC
Isolation tested with	600 V DC
Ambient conditions	
Ambient temperature during operation	
● min.	0 °C
● max.	0° C
Configuration	
Configuration software	
• STEP 7	Yes; V5.5 or higher
Programming	
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	100 mm
vvidtri	120 mm

Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	730 g
last modified:	10/09/2020

