SIEMENS

Data sheet

6ES7314-6CH04-0AB0



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

General information	
HW functional status	01
Firmware version	V3.3
Engineering with	
 Programming package 	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203
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 (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	
— Rated value (DC)	24 V

— Reverse polarity protection	Yes
Digital outputs	
— Rated value (DC)	24 V
— Reverse polarity protection	No
Input current	
Current consumption (rated value)	880 mA
Current consumption (in no-load operation), typ.	150 mA
Inrush current, typ.	5 A
l ² t	0.7 A ^{2.} s
Digital inputs	00 4
• from load voltage L+ (without load), max.	80 mA
Digital outputs	50 4
 from load voltage L+, max. 	50 mA
Power loss	
Power loss, typ.	13 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 programming), min. 	10 y
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	1 024: (DRo ECo ERo); the maximum number of loadable blacks
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 mey	1 024; Number range: 0 to 7999
• Number, max.	
• Size, max. FC	64 kbyte
Number, max.	1 024; Number range: 0 to 7999
	64 kbyte
• Size, max. 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 startup OBs	1; OB 100
Number of asynchronous error OBs	5; OB 80, 82, 85, 86, 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	
• Number	256
	250
Retentivity	Yes
— adjustable — lower limit	0
	255
— upper limit — preset	Z 0 to Z 7
Counting range	
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 times	
Number	256
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
- F.F	

— 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 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
Address area	
I/O address area	
• Inputs	2 048 byte
Outputs	2 048 byte
Process image	
Inputs	2 048 byte
Outputs	2 048 byte
 Inputs, adjustable 	2 048 byte
 Outputs, adjustable 	2 048 byte
 Inputs, default 	128 byte
• Outputs, default	128 byte
Default addresses of the integrated channels	
— Digital inputs	124.0 to 126.7
— Digital outputs	124.0 to 125.7
— Analog inputs	752 to 761
— Analog outputs	752 to 755
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. Number of DP masters	3
	4
• integrated	1
• via CP	4
Number of operable FMs and CPs (recommended)	0
• 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
• in AS, master	Yes
● in AS, slave	No
Digital inputs	
Number of digital inputs	24
 of which inputs usable for technological 	16
functions	
integrated channels (DI)	24

Input characteristic curve in accordance with IEC	Yes
61131, type 1	
Number of simultaneously controllable inputs	
horizontal installation	0 4
— 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

Output voltage • (-0.8 V) Output current • (-0.8 V) Output current • for signal "1" rated value 500 mA • for signal "1" permissible range, max. 0.6 A • for signal "1" permissible range, max. 0.5 mA • for signal "1" remissible range, max. 0.5 mA • for signal "1" permissible range, max. 0.5 mA • for uprating No • on lamp load, max. 0.5 Hz • on lamp load, max. 2.5 Hz • on lamp load, max. 2.5 Hz • on lamp load, max. 2.6 • or up to 40 °C, max. 2.A • up to 40 °C, max. 2.A • shielded, max. 600 m • shielded, max. 600 m • for reisitance/resistance fermometer 1	• upper limit	4 kΩ
Output current Solution • for signal "1" retrinsible range, min. 5 mA • for signal "1" permissible range, max. 6.6 A • for signal "1" permissible range, max. 6.6 A • for signal "1" permissible range, max. 6.6 A • for signal "1" permissible range, max. 0.6 A • for residual current, max. 0.5 mA • for uprating • for redundant control of a load Ves • with resistive load, max. 0.6 Hz • on lamp load, max. 0.6 Hz • on lamp load, max. 0.6 Hz • of the pube outputs. with resistive load, max. 100 Hz • of the pube outputs. with resistive load, max. 2.6 Hz • or to ado "C, max. 2.A • vertical installation • up to 40 "C, max. 600 m • shielded, max. 600 m • shielded, max. <td>Output voltage</td> <td></td>	Output voltage	
• for signal "1" rated value 500 mÅ • for signal "1" permissible range, min. 5 mÅ • for signal "1" permissible range, max. 0.6 Å • for signal "1" minimum load current 5 mÅ • for signal "1" minimum load current, max. 0.5 mÅ • for uprating No • for redundant control of a load Yes • with resistive load, max. 100 Hz • with resistive load, max. 0.5 Hz • on lamp load, max. 100 Hz • on lamp load, max. 100 Hz • of the pulse outputs, with resistive load, max. 2.5 kHz • on lamp load, max. 3.4 • on pup 60 °C, max. 3.4 • up to 40 °C, max. 3.4 • up to 40 °C, max. 1000 m • up to 40 °C, max. 1000 m • up to 40 °C, max. 1000 m • up to 40 °C, max. 5.4 <	● for signal "1", min.	L+ (-0.8 V)
for signal "1" permissible range, min. 5 mA i for signal "1" permissible range, max. 0.6 A i for signal "1" minimum load current 5 mA i for signal "1" minimum load current, max. 0.5 mA Parallel switching of two outputs 5 mA i for signal "1" minimum load current, max. 0.5 mA Parallel switching of two outputs Ves SWitching frequency 5 MA with resistive load, max. 100 Hz on lamp load, max. 100 Hz on lamp load, max. 0.5 Hz on lamp load, max. 100 Hz or lamp load, max. 100 Hz or lamp load, max. 2.5 kHz Total current of the outputs (per group) A horizontal installation - up to 40 °C, max. - up to 60 °C, max. 2 A vertical installation 1000 m - shielded, max. 600 m short of analog inputs 5 * For voltage/current measurement 4 * For ro voltage for current input (destruction limit), max. 5'V Permanent permissible input voltage for voltage input (destruction	Output current	
Interspectation 0.5 Å • for signal "1" permissible range, max. 0.5 Å • for signal "1" minimum load current, max. 0.5 mÅ Parallel switching of two outputs 0.5 mÅ • for uprating No • of up upts obad, max. 100 Hz • of the pulse outputs, with resistive load, max. 0.5 Hz • of the pulse outputs, with resistive load, max. 100 Hz • of the pulse outputs, with resistive load, max. 100 Hz • of the pulse outputs, with resistive load, max. 2.5 kHz • outputs (per group) A • pulse 06 °C, max. 2 Å • up to 60 °C, max. 2 Å • pulse 04 °C, max. 600 m • up to 60 °C, max. 600 m • up to 60 °C, max. 5 • for rowoltage/current measurement 4 •	 for signal "1" rated value 	500 mA
For signal "1" minimulaed current 5 mA For signal "0" residual current, max. 0.5 mA Parallel switching of two outputs Ves For uprating No For redundant control of a load Ves Switching frequency 0.5 Hz with resistive load, max. 0.5 Hz In lamp load, max. 0.5 Hz In lamp load, max. 0.5 Hz In lamp load, max. 100 Hz In lamp load, max. 100 Hz In lamp load, max. 100 Hz In lamp load, max. 2.5 Hz Total current of the outputs (per group) Internet the outputs (per group) In up to 40 °C, max. 2.A - up to 40 °C, max. 2.A Cable length Internet the outputs (per group) - up to 40 °C, max. 2.A Cable length Internet the outputs (per group) - up to 40 °C, max. 600 m Integrated Amanes 5 fracurent (per group) Integrated phannes (AI) 5 st.4 current/voltage, 1x resistance Per out 30 °C, max. 5 /V Permanent Integrated	 for signal "1" permissible range, min. 	5 mA
ior signal "0" residual current, max. 0.5 mA Parallel switching of two outputs ior redundant control of a load Yes Switching frequency 100 Hz ior redundant control of a load Yes Switching frequency 0.5 Hz ior namp load, max. 0.5 Hz • with inductive load, max. 0.5 Hz ior namp load, max. 100 Hz • on lamp load, max. 0.5 Hz ior namp load, max. 100 Hz • on lamp load, max. 100 Hz ior namp load, max. 100 Hz • on lamp load, max. 100 Hz ior namp load, max. 100 Hz • on lamp load, max. 100 Hz ior namp load, max. 2.5 kHz Total current of the outputs (per group) ior namp load, max. 2.4 • or to 60 °C, max. 2 A 2 A • wertical installation I 000 m 600 m • unshielded, max. 1 000 m 600 m • unshielded, max. 600 m 5 • for voltage/current measurement 4 4 • For voltage/current measurement 5 v; Permanent (destruction limit), max.	 for signal "1" permissible range, max. 	0.6 A
Parallel switching of two outputs No • for uprating No • for uprating Ves Switching frequency 100 Hz • with resistive load, max. 0.5 Hz • on lamp load, max. 100 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. 2.A - up to 60 °C, max. 2.A cable length 2.A • shielded, max. 1000 m • unshielded, max. 600 m • unshielded, max. 1000 m • for voltage/current measurement 4 • For voltage/current measurement 4 • For voltage/current input 5 v; Permanent (destruction limit), max. 5 v; Permanent permissible input voltage for voltage input 05 v; Permanent (destruction limit), max. 0.5 mA; Permanent permissible input current for voltage input 5 of A; Permanent (destruction limit), max. 5 of A; Permanent	 for signal "1" minimum load current 	5 mA
• for upratingNo• for redundant control of a loadYesSwitching frequency100 Hz• with resistive load, max.100 Hz• on lamp load, max.0.5 Hz• on lamp load, max.2.5 KHz• of the pulse outputs, with resistive load, max.2.5 KHz• of the outputs (per group)horizontal installation2.4 KHz up to 40 °C, max.2.A• outputs (or group)• horizontal installation2.A- up to 60 °C, max.2.A• outputs (or group)• shielded, max.1000 m• shielded, max.600 m• unshielded, max.600 m• shielded, max.5• For voltage/current measurement4• For voltage/current input5 X+X current/voltage, 1x resistance• permissible input voltage for voltage input5 V; Permanent(destruction limit), max.30 V; Permanentpermissible input voltage for voltage input0.5 mA; Permanent(destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentmint, max.50 mA; Permanentmint, max.50 mA; Permanentmint, max.50 mA; PermanentSolution limit, max.50 mA; Permanent• Solution limit,	 for signal "0" residual current, max. 	0.5 mA
For redundant control of a load Yes Switching frequency 100 Hz • with resistive load, max. 0.5 Hz • no i lamp load, max. 100 Hz • of the pulse outputs, with resistive load, max. 100 Hz • of the pulse outputs, with resistive load, max. 100 Hz • of the pulse outputs, with resistive load, max. 100 Hz • of the pulse outputs, with resistive load, max. 2 Ka Total current of the outputs (per group) 5 KHz horizontal installation 2 A - up to 40 °C, max. 2 A vertical installation 2 A - up to 40 °C, max. 600 m Cable length 1000 m • shielded, max. 600 m Number of analog inputs 5 • For voltage/current measurement 4 • For resistance/resistance thermometer measurement 1 integrated channels (A) 5 V: Permanent (destruction limit), max. 30 V; Permanent permissible input voltage for voltage input (destruction limit), max. 50 mA; Permanent permissible input current for current input (destruction limit), max. 50 mA; Permanent rechnical unit for	Parallel switching of two outputs	
Switching frequency IOO Hz • with resistive 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) Ioo Hz horizontal installation 2.5 kHz - up to 40 °C, max. 2.4 vertical installation 2.4 - up to 60 °C, max. 2.4 vertical installation 2.4 - up to 40 °C, max. 2.4 vertical installation 600 m - up to 40 °C, max. 600 m vertical installation 5 - For voltage/current measurement 4 • For voltage/current measurement 4 • For voltage/current measurement 5 • For voltage/current input 5 v/ Permanent (destruction limit), max. 30 V/ Permanent permissible input voltage for voltage input 0.5 mA; Permanent (destruction limit), max. 50 mA; Permanent permissible input current for current input (destruction limit), max. 50 mA; Permanent	● for uprating	No
• 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 kHzTotal current of the outputs (per group)horizontal installation3 A- up to 40 °C, max.3 A- up to 60 °C, max.2 Avertical installation2 A- up to 40 °C, max.2 Avertical installation2 A- up to 40 °C, max.600 mCable length600 m- up to 40 °C, max.5• shielded, max.600 mNumber of analog inputs5• For voltage/current measurement4• For resistance/resistance thermometer measurement5vertication limit), max.5 v. Permanentpermissible input voltage for current input (destruction limit), max.5 v. Permanentpermissible input current for voltage input (destruction limit), max.0.5 mA; Permanentpermissible input current for current input (destruction (destruction limit), max.5 om A; Permanentpermissible input current for current input (destruction (destruction limit), max.5 om A; Permanentpermissible input current for current input (destruction (destruction limit), max.5 om A; Permanentpermissible input current for current input (destruction (destruction limit), max.5 om A; Permanentpermissible input current for current input (destruction (destruction limit), max.5 om A; Permanentpermissible input current for current input (destruction (destructi	 for redundant control of a load 	Yes
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Nonconstant of the pulse outputs, with resistive load, max.100 Hz• of the pulse outputs, with resistive load, max.2.5 kHzTotal current of the outputs (per group)horizontal installation3 A- up to 40 °C, max.2 Avertical installation2 Acurrent of the outputs (per group)2 ACable length1000 m• unshielded, max.1000 m• unshielded, max.600 m• unshielded, max.5• For voltage/current measurement5• For voltage/current measurement5• For resistance/resistance thermometer measurement5• permissible input voltage for current input (destruction limit), max.50 mA; Permanent 0.5 mA; Permanentpermissible input current for voltage input (destruction limit), max.0.5 mA; Permanent 0 mA; Permanentpermissible input current for current input (destruction limit), max.0.5 mA; Permanent 0 mA; Permanentpermissible input current for current input (destruction limit), max.0.5 mA; Permanent 0 mA; Permanentpermissible input current for current input (destruction limit), max.0.5 mA; Permanent 0 mA; Permanentpermissible input current for current input (destruction limit), max.0.5 mA; Permanentpermissible input current for current input (destruction limit), max.0.5 mA; Permanentpermissible input current for current input (destruction limit), max.0.5 mA; Permanentpermissible input current input (destruction limit), max.0.5 mA; PermanentYeis Degrees Ce	 with resistive load, max. 	100 Hz
 of the pulse outputs, with resistive load, max. 2.5 kHz Total current of the outputs (per group) horizontal installation 	• with inductive load, max.	0.5 Hz
Total current of the outputs (per group) horizontal installation up to 40 °C, max. 3 Å up to 60 °C, max. 2 Å vertical installation 2 Å up to 40 °C, max. 2 Å Vertical installation 2 Å up to 40 °C, max. 2 Å Cable length 600 m • shielded, max. 600 m • unshielded, max. 600 m • For voltage/current measurement 4 • For resistance/resistance thermometer measurement 1 • For resistance/resistance thermometer measurement 5 '4x current/voltage, 1x resistance permissible input voltage for current input (destruction limit), max. 50 MA; 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 Technical unit for temperature measurement adjustable 50 mA; Permanent	● on lamp load, max.	100 Hz
horizontal installation 3 A up to 40 °C, max. 2 A vertical installation 2 A up to 40 °C, max. 2 A Cable length 2 A cable length 600 m • unshielded, max. 600 m • unshielded, max. 600 m • for voltage/current measurement 4 • For voltage/current measurement 1 • For voltage/current measurement 5 integrated channels (Al) 5; 4x current/voltage, 1x resistance permissible input voltage for current 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. 0.5 mA; Permanent initit), max. Com A; Permanent initit), max. 50 mA; Permanent	 of the pulse outputs, with resistive load, max. 	2.5 kHz
up to 40 °C, max.3 A 2 Aup to 60 °C, max.2 Avertical installation2 Aup to 40 °C, max.2 ACable length1 000 m• unshielded, max.600 m• unshielded, max.5• for voltage/current measurement4• For voltage/current measurement5• For voltage/current measurement5• For voltage/current measurement5• For voltage for current input (destruction limit), max.5 v, Permanentpermissible input voltage for voltage input (destruction limit), max.30 V, Permanentpermissible input current for voltage input (destruction limit), max.50 mA; Permanentpermissible input unit (destruction limit), max.50 mA; PermanentTechnical unit for temperature measurement adjustable50 mA; Permanent	Total current of the outputs (per group)	
	horizontal installation	
vertical installation 2 A Cable length 1 000 m • shielded, max. 600 m • unshielded, max. 600 m Analog inputs 5 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. 50 mA; Permanent permissible input current for current input (destruction limit), max. 50 mA; Permanent rechnical unit for temperature measurement adjustable 50 mA; Permanent	— up to 40 °C, max.	3 A
up to 40 °C, max.2 ACable length1000 m• shielded, max.600 m• unshielded, max.600 mNumber of analog inputs5• For voltage/current measurement4• For resistance/resistance thermometer measurement1• For resistance/resistance thermometer measurement5• For voltage for current input (destruction limit), max.5 V; Permanentpermissible input voltage for voltage input (destruction limit), max.30 V; Permanentpermissible input current for voltage input (destruction limit), max.0.5 mA; Permanentpermissible input current for voltage input (destruction limit), max.50 mA; Permanentpermissible input current for voltage input (destruction limit), max.50 mA; Permanentpermissible input current for voltage input (destruction limit), max.50 mA; Permanentpermissible input current for voltage input (destruction limit), max.50 mA; Permanentpermissible input current for voltage input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; PermanentTechnical unit for temperature measurement adjustableYeş; Degrees Celsius / degrees Fahrenheit / Kelvin	— up to 60 °C, max.	2 A
Cable length• shielded, max.1 000 m• unshielded, max.600 mAnalog inputsNumber of analog inputs5• For voltage/current measurement4• For resistance/resistance thermometer measurement1integrated channels (Al)5; 4x current/voltage, 1x resistancepermissible input voltage for current input (destruction limit), max.5 V; Permanentpermissible input current for voltage input (destruction limit), max.30 V; Permanentpermissible input current for voltage input (destruction limit), max.0.5 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentremissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentremissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanent	vertical installation	
• shielded, max.1 000 m• unshielded, max.600 mAnalog inputs5• For voltage/current measurement4• For resistance/resistance thermometer measurement1• for resistance/resistance thermometer measurement5• for resistance/resistance5• for resistance/resistance5• for resistance/resistance5• for resistance/resistance5• for resistance/resistance30 V; Permanent(destruction limit), max.0.5 mA; Permanent• for max50 mA; Permanentimit), max.50 mA; Permanent• for resister input (destruction limit), max.50 mA; Permanent• for resister input inf or temperature measurement adjustableYes; Degrees Celsius / degrees Fahrenheit / Kelvin	— up to 40 °C, max.	2 A
• unshielded, max.600 mAnalog inputs600 mNumber of analog inputs5• For voltage/current measurement4• For resistance/resistance thermometer measurement1integrated channels (AI)5; 4x current/voltage, 1x resistancepermissible input voltage for current input (destruction limit), max.5V; Permanentpermissible input current for voltage input (destruction limit), max.30 V; Permanentpermissible input current for voltage input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; PermanentTechnical unit for temperature measurement adjustableYes; Degrees Celsius / degrees Fahrenheit / Kelvin	Cable length	
Analog inputs 5 Number of analog inputs 4 • For voltage/current measurement 4 • For resistance/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 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 Technical unit for temperature measurement adjustable Yes; Degrees Celsius / degrees Fahrenheit / Kelvin	● shielded, max.	1 000 m
Number of analog inputs5• For voltage/current measurement4• For resistance/resistance thermometer measurement1integrated channels (AI)5; 4x current/voltage, 1x resistancepermissible input voltage for current input (destruction limit), max.5 V; Permanentpermissible input voltage for voltage input (destruction limit), max.30 V; Permanentpermissible input current for voltage input (destruction limit), max.0.5 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanenttressible input current for current input (destruction limit), max.50 mA; Permanent	• unshielded, max.	600 m
• For voltage/current measurement4• For resistance/resistance thermometer measurement1integrated channels (AI)5; 4x current/voltage, 1x resistancepermissible input voltage for current input (destruction limit), max.5 V; Permanentpermissible input voltage for voltage input (destruction limit), max.30 V; Permanentpermissible input current for voltage input (destruction limit), max.0.5 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanent	Analog inputs	
• For resistance/resistance thermometer measurement1integrated channels (AI)5; 4x current/voltage, 1x resistancepermissible input voltage for current input (destruction limit), max.5 V; Permanentpermissible input voltage for voltage input (destruction limit), max.30 V; Permanentpermissible input current for voltage input (destruction limit), max.0.5 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanent	Number of analog inputs	5
measurementintegrated channels (Al)5; 4x current/voltage, 1x resistancepermissible input voltage for current input (destruction limit), max.5V; Permanentpermissible input voltage for voltage input (destruction limit), max.30 V; Permanentpermissible input current for voltage input (destruction limit), max.0.5 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruc	 For voltage/current measurement 	4
permissible input voltage for current input (destruction limit), max.5 V; Permanentpermissible input voltage for voltage input (destruction limit), max.30 V; Permanentpermissible input current for voltage input (destruction limit), max.0.5 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; PermanentTechnical unit for temperature measurement adjustableYes; Degrees Celsius / degrees Fahrenheit / Kelvin		1
(destruction limit), max.30 V; Permanentpermissible input voltage for voltage input (destruction limit), max.30 V; Permanentpermissible input current for voltage input (destruction limit), max.0.5 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; PermanentTechnical unit for temperature measurement adjustableYes; Degrees Celsius / degrees Fahrenheit / Kelvin	integrated channels (AI)	5; 4x current/voltage, 1x resistance
(destruction limit), max.0.5 mA; Permanentpermissible input current for voltage input (destruction limit), max.0.5 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; PermanentTechnical unit for temperature measurement adjustableYes; Degrees Celsius / degrees Fahrenheit / Kelvin		5 V; Permanent
(destruction limit), max.50 mA; Permanentpermissible input current for current input (destruction limit), max.50 mA; PermanentTechnical unit for temperature measurement adjustableYes; Degrees Celsius / degrees Fahrenheit / Kelvin		30 V; Permanent
limit), max. Technical unit for temperature measurement adjustable Yes; Degrees Celsius / degrees Fahrenheit / Kelvin		0.5 mA; Permanent
adjustable		50 mA; Permanent
Input ranges	-	Yes; Degrees Celsius / degrees Fahrenheit / Kelvin
	Input ranges	

	Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ
• Voltage	Yes; $\pm 20 \text{ mA} / 100 \Omega$; 0 mA to 20 mA / 100 Ω ; 4 mA to 20 mA /
Current	res, ± 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	
• 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 MΩ
Input ranges (rated values), resistors	
• 0 to 600 ohms	Yes
— Input resistance (0 to 600 ohms)	10 MΩ
Thermocouple (TC)	
Temperature compensation	
— parameterizable	No
Characteristic linearization	
parameterizable	Yes; by software
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 14 V
Current output, no-load voltage, max. Output ranges, voltage	14 V
• 0 to 10 V	Yes
• 0 to 10 V • -10 V to +10 V	Yes
• 0 to 20 mA	Yes
	Yes
• -20 mA to +20 mA	Yes
4 mA to 20 mA 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, 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	d currents
 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 	Yes; Without compensation of the line resistances
connection	

 for resistance measurement with three-wire connection 	No
 for resistance measurement with four-wire connection 	No
Connectable encoders	
• 2-wire sensor	Yes
— permissible quiescent current (2-wire	1.5 mA
sensor), max.	
Errors/accuracies Temperature error (relative to input range), (+/-)	0.006 %/K
Crosstalk between the inputs, min.	60 dB
Repeat accuracy in steady state at 25 °C (relative to	0.06 %
input range), (+/-)	
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 = interference frequency
 Series mode interference (peak value of 	30 dB
interference < rated value of input range), min.	
• Common mode interference, min.	40 dB
Interfaces	
Number of industrial Ethernet interfaces	0
Number of PROFINET interfaces	0
Number of RS 485 interfaces	2; MPI and PROFIBUS DP
Number of RS 422 interfaces	0

. Interface	Integrated DC 195 interface
Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	No
Power supply to interface (15 to 30 V DC), max.	200 mA
Protocols	
• MPI	Yes
 PROFIBUS DP master 	No
 PROFIBUS DP slave 	No
 Point-to-point connection 	No
MPI	
 Transmission rate, max. 	187.5 kbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— 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
. Interface	
Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
Protocols	
• MPI	No
PROFINET IO Controller	No
PROFINET IO Device	No
• PROFINET CBA	No
PROFIBUS DP master	Yes
PROFIBUS DP slave	Yes

 PROFIBUS DP slave 	165
 Point-to-point connection 	No
PROFIBUS DP master	
 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

— So communication, as clent No — S7 communication, as clent No — S7 communication, as server Yes — Equidatance Yes — Isochronous mode No — SYNCFREEZE Yes — Adivation/deactivation of DP slaves Yes — Adivation/deactivation of DP slaves Yes — Number of DP slaves that can be 8 — Simultaneously activate/deactivation 8 — Direct data axchange (slave-to-slave Yes; as subscriber — Outputs, max. 2 kbyte — SD file The latest GSD file is available on the Internet (nttp://www.sienens.com/prof/bus-gsd) • Transmission rate, max. 12 kb/ts • automatic baud rate search Yes; only with passive interface • Address area, max. 32 > Suber data per address area, max. 32 byte Services — — PG/OP communication <td< th=""><th>— S7 communication</th><th>Yes; Only server, configured on one side</th></td<>	— S7 communication	Yes; Only server, configured on one side
Equidistance Yes Isochronous mode No SYNC/FREZE Yes Activation/deactivation of DP slaves Yes Number of DP slaves that can be 8 simultaneously activated/deactivated, max. - Dired data exchange (slave-to-slave communication) Yes; as subscriber Dired data exchange (slave-to-slave communication) Yes; as subscriber Dirut Yes Address area - Inputs, max. 2 kbyte Outputs, max. 2 kbyte Outputs, max. 2 kbyte Outputs, max. 244 byte Outputs, max. 24 byte Outputs, max. 24 byte Outputs, max. 24 byte Outputs, max. 32 Transmission rate, max. 32 Transmission rate, max. 32 PG/OP communication Yes; Only with passive interface Routing Yes		
Isochronous mode No - SYNC/FREEZE Yes - Activation/deactivation of DP slaves Yes - Number of DP slaves that can be 8 - Direct data exchange (slave-to-slave communication) Yes: as subscriber - Direct data exchange (slave-to-slave communication) Yes - Direct data exchange (slave-to-slave communication) Yes - Direct data exchange (slave-to-slave communication) 2 kbyte - Duptis, max. 2 kbyte - Outputs, max. 32 - Store max. 32 <td></td> <td></td>		
- SYNC/FREEZ Yes - Activation/deactivation of DP slaves Yes - Number of DP slaves that can be 8 simultaneously activated/deactivated, max. - - Direct data exchange (slave-to-slave communication) Yes; as subscriber - Direct data exchange (slave-to-slave communication) Yes - DeV1 Yes Address area - - Inputs, max. 2 kbyte - Outputs, max. 2 kbyte - Outputs, max. 2 kbyte - Outputs, max. 244 byte PROFIBUS DP slave The latest GSD file is available on the Internet (tht://www.siemens.com/profibus-gsd) • Transmission rate, max. 12 Mbit/s • automatic baud rate search Yes; only with passive interface • GSD file Yes: Only with active interface - PGiOP communication Yes - Giobal data communication No - S7 communication Yes; Only server, configured on one side - S7 communication		
- 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 2 kbyte - Outputs, max. 2 kbyte User data per DP slave 244 byte - Outputs, max. 244 byte PROFIBUS DP slave The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) * 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; Only with active interface Services - PS/GOP communication Yes; Only with active interface - S7 communication No - S7 communication Yes - S7 communication, as client No - S7 communication, as server Yes - S7 communication, as server Yes - Direct data exchange (slave-to-slave communication) Yes - Direct data exchange (slave-to-slave communication) Yes - Direct data exchange (slave-to-slave communication) Yes - S7 communication,		
Number of DP slaves that can be simultaneously activated/deactivated, max. Direct data exchange (slave-to-slave communication) DPV1 Yes; as subscriber DPV1 Yes Address area 2 kbyte Outputs, max. 32 byte Transmission rate, max. 32 byte Services - PG/OP communication Sorting Yes; Only with active interface S7 communication Yes; Only server, configured on one		
simultaneously activated/deactivated, max.Yes; as subscriber communication)- DPV1YesAddress areaZ kbyte- Inputs, max.2 kbyte- Outputs, max.2 kbyteUser data per DP slave2 kd byte- Outputs, max.244 byte- Outputs, max.244 byte- Outputs, max.244 byte- Outputs, max.244 bytePROFIBUS DP slaveThe latest GSD file is available on the Internet (futp://www.siemens.com/profibus-gsd)• Transmission rate, max.12 Mbit/s• automatic baud rate searchYes; only with passive interface• Address area, max.32• User data per address area, max.32 byteServicesServices- Global data communicationNo- S7 communication, as clientNo- S7 communication, as clientYes; Only server, configured on one side- S7 communication, as clientNo- S7 communication, as clientNo- S7 communication, as clientYes- Direct data exchange (slave-to-slave communication)Yes- Direct data exchange (slave-to-slave communic		
communication) DPV1 Yes Address area lnputs, max. 2 kbyte Outputs, max. 2 kbyte Outputs, max. 244 byte Outputs, max. 244 byte Outputs, max. 244 byte Outputs, max. 244 byte PROFIBUS DP slave GSD file The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) 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 Sr pasic communication Sr communication, as client No Sr communication, as server Yes Direct data exchange (slave-to-slave communication) Dinet tas ex		
Address area - Inputs, max. 2 kbyte Outputs, max. 2 kbyte User data per DP slave 244 byte - Outputs, max. 244 byte PROFIBUS DP slave 244 byte PROFIBUS DP slave 244 byte PROFIBUS DP slave 12 Mbit/s PROFIBUS DP slave The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) • 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 - S7 communication No - S7 communication Yes; Only server, configured on one side - S7 communication, as client No - S7 communication, as server Yes - Direct data exchange (slave-to-slave communication) Yes - Outputs		Yes; as subscriber
Inputs, max.2 kbyte Outputs, max.2 kbyteUser data per DP slave244 byte Inputs, max.244 byte Outputs, max.244 bytePROFIBUS DP slave7PROFIBUS DP slave11 ketst GSD file is available on the Internet (http://www.siemens.com/profibus-gsd)• Transmission rate, max.12 Mbit/s• automatic baud rate searchYes; only with passive interface• Address area, max.32• User data per address area, max.32 byteServices PG/OP communicationYes; Only with active interface- Solobal data communicationNo- S7 basic communicationNo- S7 communication, as clientNo- S7 communication, as serverYes;- Direct data exchange (slave-to-slave communication, as server)Yes- Direct data exchange (slave-to-slave communication, as server)Yes- Direct data exchange (slave-to-slave communication, as 244 byte- Outputs244 byte- Outputs244 byte	— DPV1	Yes
- Outputs, max. 2 kbyte User data per DP slave 244 byte - Inputs, max. 244 byte PROFIBUS DP slave 244 byte • GSD file The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) • 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 - - Routing Yes; Only with active interface - Global data communication No - S7 basic communication Yes; Only server, configured on one side - S7 communication, as server Yes - Direct data exchange (slave-to-slave communication) Yes - DPV1 No Transfer memory - - Inputs 244 byte - Outputs 244 byte	Address area	
User data per DP slave 244 byte - Inputs, max. 244 byte PROFIBUS DP slave 244 byte • GSD file The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) • 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; Only with active interface - Global data communication No - S7 basic communication No - S7 communication Yes; Only server, configured on one side - S7 communication, as client No - S7 communication, as server Yes - DIvet data exchange (slave-to-slave communication) Yes - DIvet data exchange (slave-to-slave communication) Ves - DIvet data exchange (slave-to-slave communication) Ves - DIvet data exchange (slave-to-slave communication) Ves - DIvet data exchange (slave-to-slave communication) - - DIvet data exchange (slave-to-slave communication) - - DIvet data exchange (slave-to-slave communication	— Inputs, max.	2 kbyte
	— Outputs, max.	2 kbyte
- Outputs, max. 244 byte PROFIBUS DP slave - • GSD file The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) • 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; Only with active interface - Routing Yes; Only with active interface - Global data communication No - S7 basic communication No - S7 communication, as client No - S7 communication, as server Yes - Direct data exchange (slave-to-slave communication) Yes - DPV1 No Transfer memory - - Inputs 244 byte - Outputs 244 byte	User data per DP slave	
PROFIBUS DP slave • GSD file The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) • 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; Only with active interface — Routing Yes; Only with active interface — Global data communication No — S7 communication Yes; Only server, configured on one side — S7 communication, as client No — S7 communication, as server Yes — Direct data exchange (slave-to-slave communication) Yes — DPV1 No Transfer memory	— Inputs, max.	244 byte
• GSD file The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) • 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; Only with active interface — Routing Yes; Only with active interface — Global data communication No — S7 basic communication No — S7 communication Yes; Only server, configured on one side — S7 communication, as client No — S7 communication, as server Yes — Direct data exchange (slave-to-slave communication) Yes — DPV1 No Transfer memory	— Outputs, max.	244 byte
• 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; Only with active interface - Routing Yes; Only with active interface - Global data communication No - S7 basic communication No - S7 communication Yes; Only server, configured on one side - S7 communication, as client No - S7 communication, as client No - S7 communication, as server Yes - Direct data exchange (slave-to-slave communication) Yes - DPV1 No - DPV1 No - DPV1 No - Outputs 244 byte - Outputs 244 byte	PROFIBUS DP slave	
• 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; Only with active interface - Routing Yes; Only with active interface - Global data communication No - S7 basic communication No - S7 communication Yes; Only server, configured on one side - S7 communication, as client No - S7 communication, as server Yes - Direct data exchange (slave-to-slave communication) No - DPV1 No Transfer memory 244 byte - Outputs 244 byte - Outputs Yes	● GSD file	
• Address area, max.32• User data per address area, max.32 byteServices PG/OP communicationYes- RoutingYes; Only with active interface- Global data communicationNo- S7 basic communicationNo- S7 communicationYes; Only server, configured on one side- S7 communication, as clientNo- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)Yes- DPV1NoTransfer memory244 byte- Outputs244 byte- Outputs244 byte	 Transmission rate, max. 	12 Mbit/s
• 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; Only server, configured on one side - S7 communication, as client No - S7 communication, as server Yes - Direct data exchange (slave-to-slave communication) Yes - DPV1 No Transfer memory 244 byte - Outputs 244 byte	 automatic baud rate search 	Yes; only with passive interface
Services Yes - PG/OP communication Yes; Only with active interface - Routing Yes; Only with active interface - Global data communication No - S7 basic communication No - S7 communication Yes; Only server, configured on one side - S7 communication, as client No - S7 communication, as server Yes - Direct data exchange (slave-to-slave communication) Yes - DPV1 No Transfer memory 244 byte - Outputs 244 byte - Outputs Yes	• Address area, max.	32
PG/OP communicationYes- RoutingYes; Only with active interface- Global data communicationNo- S7 basic communicationNo- S7 communicationYes; Only server, configured on one side- S7 communication, as clientNo- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)Yes- DPV1NoTransfer memory244 byte- Inputs244 byte- Outputs244 bytePG/OP communicationYes	• User data per address area, max.	32 byte
- Routing Yes; Only with active interface - Global data communication No - S7 basic communication No - S7 communication Yes; Only server, configured on one side - S7 communication, as client No - S7 communication, as server Yes - Direct data exchange (slave-to-slave communication) Yes - DPV1 No Transfer memory 244 byte - Outputs 244 byte - Outputs Yes	Services	
Global data communicationNo	— PG/OP communication	Yes
S7 basic communicationNo- S7 communicationYes; Only server, configured on one side- S7 communication, as clientNo- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)Yes- DPV1NoTransfer memory244 byte- Outputs244 byte244 byteCommunication functionsYesYesYes- NoYes- SPV1Yes- SPV1- SPV1Yes- SPV1- SPV1Yes- SPV1- SPV1Yes- SPV1- SPV1Yes- SPV1- SPV1<	— Routing	Yes; Only with active interface
- S7 communicationYes; Only server, configured on one side- S7 communication, as clientNo- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)Yes- DPV1NoTransfer memory244 byte- Inputs244 byte- Outputs244 byteCommunication functionsYesPG/OP communicationYes	— Global data communication	No
- S7 communication, as clientNo- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)Yes- DPV1NoTransfer memoryImputs- Inputs244 byte- Outputs244 byteCommunication functionsYesPG/OP communicationYes	— S7 basic communication	No
	— S7 communication	Yes; Only server, configured on one side
- Direct data exchange (slave-to-slave communication)Yes- DPV1NoTransfer memory Inputs244 byte- Outputs244 byte244 byte244 byte	— S7 communication, as client	No
communication) No - DPV1 No Transfer memory 244 byte - Outputs 244 byte Outputs 244 byte	— S7 communication, as server	Yes
Transfer memory - Inputs 244 byte - Outputs 244 byte 244 byte 244 byte		Yes
Inputs 244 byte Outputs 244 byte Communication functions 244 byte PG/OP communication Yes	— DPV1	No
- Outputs 244 byte Communication functions Yes	Transfer memory	
Communication functions PG/OP communication Yes	— Inputs	244 byte
PG/OP communication Yes	— Outputs	244 byte
	Communication functions	
Data record routing Yes	PG/OP communication	Yes
	Data record routing	Yes

Global data communication	N
 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,	0
min.	
— adjustable for S7 basic communication,	8
max.	
• usable for routing	4; 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	
Test commissioning functions Status block	Yes; Up to 2 simultaneously
Single step	Yes
Number of breakpoints	4
Status/control	4
Status/control variable	Yes
Variables	Inputs, outputs, memory bits, DB, times, counters
	30
Number of variables, max.	
— 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
Interrupts/diagnostics/status information	
Diagnostics indication LED	Nee
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 Isolation tested with	600 V DC
	000 V DC
Ambient conditions	
Ambient temperature during operation	
• min.	0°0
• max.	0°C
Configuration	
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
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	120 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	680 g
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