SIEMENS

Data sheet

6ES7314-6CH04-0AB0



SIMATIC S7-300, CPU 314C-2 DP COMPACT CPU WITH MPI, 24 DI/16 DO, 4AI, 2AO, 1 PT100, 4 FAST COUNTERS (60 KHZ), INTEGRATED DP INTERFACE, INTEGRATED 24V DC POWER SUPPLY, 192 KBYTE WORKING MEMORY, FRONT CONNECTOR (2 X 40PIN) AND MICRO MEMORY CARD REQUIRED

General information	
Hardware product version	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	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
Digital inputs	
Load voltage L+	
— Rated value (DC)	24 V

— Reverse polarity protection	Yes
Digital outputs	
Load voltage L+	
— Rated value (DC)	24 V
- Reverse polarity protection	No
· · · ·	
Input current	880 mA
Current consumption (rated value)	150 mA
Current consumption (in no-load operation), typ.	5 A
Inrush current, typ. I²t	0.7 A ² ·s
	0.7 A-'S
Digital inputs	80 mA
from load voltage L+ (without load), max.	00 111A
Digital outputs	50 mA
 from load voltage L+, max. 	JUTIA
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 	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

• Number, max. 1 024; Number range: 0 to 7999 • Kize, max. 64 kbyte FC • Number, max. • Number, max. 1 024; Number range: 0 to 7999 • Size, max. 64 kbyte OB • Size, max. • Descripton see instruction list • Size, max. 64 kbyte • Number of free cycle OBs 1: 0B 1 • Number of time alarn OBs 1: 0B 1 • Number of delay alarn OBs 2: 0B 32, 33, 34, 35 • Number of optic instrupt OBs 3: 0B 55, 56, 57 • Number of synchronous error OBs 3: 0B 100 • Number of synchronous error OBs 3: 0B 12, 122 • Number of synchronous error OBs 2: 0B 101, 122 • Number of synchronous error OBs 2: 0B 121, 122 • Number of synchronous error OBs 2: 0B 121, 122 • Number of synchronous error OBs 4 • Ourtlers, timers and their retentivity 556 S7 counter 256 • number 256 • Retentitidy 0 - adjustable 10 - upper limit 0 • Type SFE	FB	
FC • Number, max. 1 024; Number range: 0 to 7999 • Size, max. 64 kbyte • Description see instruction list • Size, max. 64 kbyte • Number of free cycle OBs 1; 08 1 • Number of time alarn OBs 2; 08 20, 21 • Number of delay alarn OBs 1; 08 10 • Number of cyclic interrupt OBs 1; 08 32, 33, 34, 35 • Number of of DPV1 alarn OBs 1; 08 40 • Number of startup OBs 1; 08 100 • Number 16 • additional within an erro OB 4 Octuper 1 • Lower limit 0 - upper limit 25	 Number, max. 	1 024; Number range: 0 to 7999
• Number, max.1 024; Number range: 0 to 7999• Size, max.64 kbyte• Descriptionsee instruction list• Size, max.64 kbyte• Number of free cycle OBs1; 0B 1• Number of free cycle OBs1; 0B 10• Number of free cycle OBs2; 0B 20, 21• Number of of cyclic interrupt OBs4; 0B 32, 33, 34, 35• Number of process alarn OBs1; 0B 40• Number of sonchronous error OBs5; 0B 80, 82, 85, 86, 87• Number of synchronous error OBs5; 0B 80, 82, 85, 86, 87• Number of synchronous error OBs2; 0B 121, 122Number of synchronous error OBs16• additional within an error OB4Counters, timers and their retentivityS7 counter• Number256• Number255- preset20 to 27Counters, timers and their retentivity- adjustableYes- lower limit0- upper limit255- preset20 to 27CounterFille• lower limit0- upper limit9· lower limit0- upper limit9· lower limit0- upper limit9· lower limit0· upper limit9· lower limit0· lower limit9· lower limit9·	• Size, max.	64 kbyte
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• Descriptionsee instruction list• Size, max.64 kbyte• Number of free cycle OBs1; OB 1• Number of time alarm OBs1; OB 10• Number of delay alarm OBs2; OB 20, 21• Number of gycle interpt OBs4; OB 32, 33, 34, 35• Number of process alarm OBs1; OB 40• Number of process alarm OBs1; OB 40• Number of process alarm OBs1; OB 40• Number of synchronous error OBs5; OB 80, 82, 85, 86, 87• Number of asynchronous error OBs5; OB 80, 82, 85, 86, 87• Number of synchronous error OBs4• Description16• additional within an error OB4• Counters, timers and their retentivityS7 counter256- adjustable989- lower limit0- upper limit255- preset2 to to 2 7Counting range lower limit999- upper limit5FB• presentYes• TypeSFB• Number256• Number256• Number5FB• Number5FB• Number5FB• Number256• TypeSFB• Number256• TypeSFB• Number256• Number256• Number256• Number256• Number256• Number256• Number256• Number256 <tr <tr="">• Number2</tr>	• Size, max.	64 kbyte
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• Number of time alarm OBs1; OB 10• Number of delay alarm OBs2; OB 20, 21• Number of cyclic interrupt OBs4; OB 32, 33, 34, 35• Number of process alarm OBs1; OB 40• Number of DPV1 alarm OBs3; OB 55, 56, 57• Number of startup OBs1; OB 100• Number of startup OBs5; OB 80, 82, 85, 86, 87• Number of asynchronous error OBs5; OB 80, 82, 85, 86, 87• Number of synchronous error OBs2; OB 121, 122Netting depth• per priority class16• additional within an error OB4 Counters, timers and their retentivityS7 courter • Number256Retentivity- adjustableYes- lower limit0- upper limit255- preset2 to 2 7 Counter - lower limit99- lower limit0- upper limit5FB- presentYes· NumberSFB· NumberSFB· NumberSFB· Number256 S7 times SFB· NumberSFB· Number256 Retentivity SFB· TypeSFB· Number256· Number256· NumberSFB· NumberSFB· NumberSFB· Number256· Retentivity· · · · · · · · · · · · · · · · · · ·	• Size, max.	64 kbyte
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• Number of cyclic interrupt OBs4: OB 32, 33, 34, 35• Number of process alarm OBs1: OB 40• Number of DPV1 alarm OBs3: OB 55, 56, 57• Number of startup OBs1: OB 100• Number of startup OBs5: OB 80, 82, 85, 86, 87• Number of synchronous error OBs5: OB 80, 82, 85, 86, 87• Number of synchronous error OBs5: OB 121, 122• Nesting depth16• per priority class16• additional within an error OB4 Counters, timers and their retentivity 256 S rounter -• Number256Retentivity255- adjustableYes- lower limit0- upper limit255- preset2 to to 2 7 Counter 999 IEC counter Yes• NumberSF B• NumberSF B• Number256Retentivity adjustable0- upper limit0- adjustableYes• NumberSF B• NumberSF B• Number256- adjustableYes• number256- adjustableYes• adjustableSF B• numberSF B• number256- adjustableYes <td> Number of time alarm OBs </td> <td>1; OB 10</td>	 Number of time alarm OBs 	1; OB 10
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• Number of DPV1 alarm OBs3; OB 55, 56, 57• Number of startup OBs1; OB 100• Number of asynchronous error OBs5; OB 80, 82, 85, 86, 87• Number of synchronous error OBs2; OB 121, 122Nesting depth4• per priority class16• additional within an error OB4Counters, timers and their retentivity57 counterS7 counter256• Number256Retentivity10- adjustableYes- lower limit0- upper limit255 counter- lower limit0- upper limit250 to 27Counting range10 to 27- Counter99- lower limit99- stroper limit99- nupper limit5FB• NumberSFB• NumberSFB• Number256- forsentVers• forsentSFB• NumberSFB• Number256- adjustableVers• nupper limit256- adjustableYes• nupper limit99• adjustableSFB• NumberSFB• Number256• Retentivity-• adjustableYes	 Number of cyclic interrupt OBs 	4; OB 32, 33, 34, 35
• Number of startup OBs1; OB 100• Number of asynchronous error OBs5; OB 80, 82, 85, 86, 87• Number of synchronous error OBs2; OB 121, 122Nesting depth16• per priority class16• additional within an error OB4Counters, timers and their retentivityS7 counter• Number256Retentivity- adjustableYes- lower limit0- upper limit255- preset20 to 27Counting range0- upper limit99- presentYes- presentSFB• NumberSFB• NumberSFB• Number256ST timesYes- adjustable9- adjustable10 to 27Counting range9- lower limit9- presentSFB• NumberSFB• NumberSFB• Number256Retentivity adjustableYes- adjustableYes	 Number of process alarm OBs 	1; OB 40
• Number of asynchronous error OBs5; OB 80, 82, 85, 86, 87• Number of synchronous error OBs2; OB 121, 122Nesting depth18• per priority class16• additional within an error OB4Counters, timers and their retentivityS7 counter256• Number256• Retentivity adjustableYes- lower limit0- upper limit255- preset2 0 to 2 7Counter999IEC counterYes• NumberSFB• NumberSFB• NumberUnlimited (limited only by RAM capacity)\$7 times256PresentYes• Number0- adjustable0- adjustable0- adjustable0- adjustable0- adjustable0- adjustable0- adjustable0- adjustable255- adjustableYes- adjustableYes- adjustable256- adjustable256	 Number of DPV1 alarm OBs 	3; OB 55, 56, 57
• Number of synchronous error OBs2; OB 121, 122Nesting depth16• per priority class16• additional within an error OB4Counters, timers and their retentivity\$7 counter256• Number256Retentivity adjustableYes- lower limit0- upper limit255- preset2 to to Z 7Counting range999IEC counter• presentYes• TypeSFB• NumberSFB• NumberSFB• Number256FilmesSFB• Number256• StrimesSFB• Number256• NumberSFB• Number256• Number256• RetentivityYes• Jupper limit999• StrimesSFB• Number256• Number256• Retentivity adjustable4• Number256• Number256• Retentivity adjustableYes	 Number of startup OBs 	1; OB 100
Nesting depth 16 • additional within an error OB 4 Counters, timers and their retentivity 4 S7 counter 256 Retentivity - adjustable - adjustable Yes - lower limit 0 - upper limit 255 - preset Z 0 to Z 7 Counter 999 IEC counter Yes • nower limit 0 - upper limit S7 5 - preset Z 0 to Z 7 Counting range 999 IEC counter SFB • type SFB • Number SFB • Number Z56 • Number Z 0 to Z 7	 Number of asynchronous error OBs 	5; OB 80, 82, 85, 86, 87
• per priority class16• additional within an error OB4Counters, timers and their retentivity256S7 counter256• Number0- adjustableYes- lower limit0- upper limit255- presetZ 0 to Z 7Counting range999IEC counter999IEC counterYes• presentYes• TypeSFB• NumberSFB• NumberUnlimited only by RAM capacity)S7 times256Retentivity256- adjustableYes• NumberSFB• NumberSFB• NumberSFB• NumberSfG• NumberYes• N	 Number of synchronous error OBs 	2; OB 121, 122
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S7 counter 256 Retentivity - adjustable - adjustable Yes - lower limit 0 - upper limit 255 - 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 256 Retentivity - - adjustable Yes	Counters, timers and their retentivity	
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	 adjustable lower limit upper limit preset Counting range lower limit upper limit IEC counter present Type Number S7 times Number Retentivity adjustable 	0 255 2 0 to Z 7 0 999 999 Ves SFB Unlimited (limited only by RAM capacity) 256

— upper limit	255
— preset	No retentivity
Time range	
— lower limit	10 ms
	9 990 s
— upper limit IEC timer	3 330 5
	Yes
• present	SFB
• Type	
• 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	
• Number, max.	1 024; Number range: 1 to 16000
• Size, max.	64 kbyte
 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 	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
, and g in parts	

— Analog outputs	752 to 755
Digital channels	40.040
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 period 	Clock continues to run with the time at which the power failure occurred
Operating hours counter	
Number	1
Number/Number range	0
Range of values	0 to 2^31 hours (when using SFC 101)
Granularity	1 hour
• retentive	Yes; Must be restarted at each restart
Clock synchronization	
• supported	Yes
	N
 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	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 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 +30V
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 counter/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
Analog inputs	
Number of analog inputs	5
 For voltage/current measurement 	4
 For resistance/resistance thermometer measurement 	1

integrated channels (AI)	5; 4 x current/voltage, 1 x resistance
permissible input voltage for current input	5 V; Permanent
(destruction limit), max.	
permissible input voltage for voltage input	30 V; Permanent
(destruction limit), max.	
permissible input current for voltage input	0.5 mA; Permanent
(destruction limit), max.	50 mAi Dermanant
permissible input current for current input (destruction limit), max.	50 mA; Permanent
Technical unit for temperature measurement	Yes; Degrees Celsius / degrees Fahrenheit / Kelvin
adjustable	
Input ranges	
Voltage	Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ
Current	Yes; ±20 mA / 100 $\Omega;$ 0 mA to 20 mA / 100 $\Omega;$ 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	
 No-load voltage, typ. 	3.3 V
Measuring current, typ.	1,25 mA
• 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
— for resistance thermometer	Pt 100
Cable length	
 shielded, max. 	100 m

Analog outputs	
Number of analog outputs	2
integrated channels (AO)	2
Voltage output, short-circuit protection	Yes
Voltage output, short-circuit current, max.	55 mA
Current output, no-load voltage, max.	14 V
Output ranges, voltage	
• 0 to 10 V	Yes
• -10 V to +10 V	Yes
Output ranges, current	
• 0 to 20 mA	Yes
• -20 mA to +20 mA	Yes
• 4 mA to 20 mA	Yes
Connection of actuators	
 for voltage output two-wire connection 	Yes; Without compensation of the line resistances
 for voltage output four-wire connection 	No
 for current output two-wire connection 	Yes
Load impedance (in rated range of output)	
 with voltage outputs, min. 	1 kΩ
 with voltage outputs, 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
Anglenishing	
Analog value generation 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
 Conversion time (per channel) 	1 ms
• Time constant of the input filter	0.38 ms
 Basic execution time of the module (all 	1 ms
channels released)	
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
 permissible quiescent current (2-wire sensor), max. 	1.5 mA
Errors/accuracies	
Temperature error (relative to input range), (+/-)	0.006 %/K
Crosstalk between the inputs, min.	60 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.06 %
Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-)	0.1 %
Linearity error (relative to output range), (+/-)	0.15 %
Temperature error (relative to output range), (+/-)	0.01 %/K
Crosstalk between the outputs, min.	60 dB
Repeat accuracy in steady state at 25 °C (relative to output range), (+/-)	0.06 %
Operational error limit in overall temperature range	
 Voltage, relative to input range, (+/-) 	1 %
 Current, relative to input range, (+/-) 	1 %
 Resistance, relative to input range, (+/-) 	1 %
 Voltage, relative to output range, (+/-) 	1 %
• Current, relative to output range, (+/-)	1 %
Basic error limit (operational limit at 25 °C)	
 Voltage, relative to input range, (+/-) 	0.8 %; Linearity error +/- 0.06 %
• Current, relative to input range, (+/-)	0.8 %; Linearity error +/- 0.06 %
• Resistance, relative to input range, (+/-)	0.8 %; Linearity error +/- 0.2%
 Resistance thermometer, relative to input range, (+/-) 	0.8 %
 Voltage, relative to output range, (+/-) 	0.8 %

• Current, relative to output range, (+/-)	0.8 %	
Interference voltage suppression for $f = n x (f1 +/-1 \%)$		
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 RS 485 interfaces	2; MPI and PROFIBUS DP	
Number of RS 422 interfaces	0	
1. Interface		
Interface type	Integrated RS 485 interface	
Physics	RS 485	
Isolated	No	
Power supply to interface (15 to 30 V DC), max.	200 mA	
Functionality		
• 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	
2. Interface		
Interface type	Integrated RS 485 interface	
Physics	RS 485	
Isolated	Yes	
Power supply to interface (15 to 30 V DC), max.	200 mA	
Functionality		
• MPI	No	
PROFINET IO Controller	No	
PROFINET IO Device	No	
PROFINET CBA	No	
PROFIBUS DP master	Yes	

• PROFIBUS DP slave

Yes

 Point-to-point connection 	No
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
— S7 communication	Yes; Only server, configured on one side
— S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	No
- SYNC/FREEZE	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
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
— 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	
— Inputs	244 byte
— Outputs	244 byte
Communication functions	
PG/OP communication	Yes
Data record routing	Yes
Global data communication	
• supported	Yes
 Number of GD loops, max. 	8
 Number of GD packets, max. 	8
 Number of GD packets, transmitter, max. 	8
• Number of GD packets, receiver, max.	8
 Size of GD packets, max. 	22 byte
 Size of GD packet (of which consistent), max. 	22 byte
S7 basic communication	
• supported	Yes
• User data per job, max.	76 byte
 User data per job (of which consistent), max. 	76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes; Via CP and loadable FB
• User data per job, max.	180 kbyte; With PUT/GET
• User data per job (of which consistent), max.	240 byte; as server
S5 compatible communication	
• supported	Yes; via CP and loadable FC
Number of connections	
• overall	12
 usable for PG communication 	11
— reserved for PG communication	1
— adjustable for PG communication, min.	1
— adjustable for PG communication, max.	11
 usable for OP communication 	11
— reserved for OP communication	1
— adjustable for OP communication, min.	1
— adjustable for OP communication, max.	11
 usable for S7 basic communication 	8

 reserved for S7 basic communication 	0
— adjustable for S7 basic communication,	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	
Status block	Yes; Up to 2 simultaneously
Single step	Yes
Number of breakpoints	4
Status/control	
 Status/control variable 	Yes
Variables	Inputs, outputs, memory bits, DB, times, counters
 Number of variables, max. 	30
— of which status variables, max.	30
— of which control variables, max.	14
Forcing	
Forcing	Yes
 Forcing, variables 	Inputs, outputs
 Number of variables, max. 	10
Diagnostic buffer	
• present	Yes
 Number of entries, max. 	500
— adjustable	No
— of which powerfail-proof	100; Only the last 100 entries are retained
 Number of entries readable in RUN, max. 	499
— can be set	Yes; From 10 to 499
— preset	10
Service data	
• can be read out	Yes
Interrupts/diagnostics/status information	
Diagnostics indication LED	
 Status indicator digital output (green) 	Yes
 Status indicator digital input (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
Permissible potential difference	
between different circuits	75 V DC/60 V AC
Between the inputs and MANA (UCM)	8 V DC
between MANA and M internally (UISO)	75 V DC/60 V AC
Isolation	
Isolation tested with	600 V DC
Ambient conditions	
Ambient temperature during operation	
• min.	0°C
• max.	60 °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

	N.
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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