SIEMENS

Data sheet

6ES7318-3FL01-0AB0



SIMATIC S7-300 CPU319F-3 PN/DP, Central processing unit with 2.5 MB work memory, 1st interface MPI/DP 12 Mbit/s, 2nd interface DP master/slave 3rd interface Ethernet PROFINET, Micro Memory Card required

Firmware version V3.2 Product function • Isochronous mode • Isochronous mode Yes; Via 2nd PROFIBUS DP or PROFINET interface Engineering with • • Programming package STEP 7 V5.5 or higher, Distributed Safety V5.4 SP4 Supply voltage Rated value (DC) Parmissible range, lower limit (DC) 19.2 V permissible range, lower supply lines (recommendation) 2.4 With the second secon	General information	
• Isochronous mode Yes; Via 2nd PROFIBUS DP or PROFINET interface Engineering with • • Programming package STEP 7 V5.5 or higher, Distributed Safety V5.4 SP4 Supply voltage • Rated value (DC) 24 V permissible range, lower limit (DC) 19.2 V permissible range, upper limit (DC) 28.8 V external protection for power supply lines (recommendation) 2 A min. Mains buffering • • Mains/voltage failure stored energy time 5 ms • Repeat rate, min. 1 s Input current Current consumption (rated value) Current consumption (ran no-load operation), typ. 500 mA Inrush current, typ. 4 A IP 1.2 A* s Power loss, typ. 14 W Memory • • Integrated 2 560 kbyte • expandable No Lad memory • • Plug-in (MMC), max. 8 Mbyte • Data management on MMC (after last programming), min. 8 Mbyte • Data management on MMC (after last programming), min. 10 y Backup Yes • present Yes • without battery Yes • PU poresions, typ. 0.004 µs	Firmware version	V3.2
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permissible range, upper limit (DC) 28.8 V external protection for power supply lines (recommendation) 2 A min. Mains buffering 5 ms • Mains/voltage failure stored energy time 5 ms • Repeat rate, min. 1 s Input current 1 s50 mA Current consumption (rated value) 1 250 mA Current consumption (in no-load operation), typ. 500 mA Inrush current, typ. 4 A Pt 1.2 A*-s Power loss 9 Power loss, typ. 14 W Memory 9 Uota memory 1 S60 kbyte • expandable No Load memory 9 • Plug-in (MMC), max. 8 Mbyte • Data management on MMC (after last programming), min. 10 y Backup Yes • present Yes • without battery Yes CPU processing times 0.004 µs	Rated value (DC)	24 V
external protection for power supply lines (recommendation) 2 A min. Mains buffering 5 ms • Repeat rate, min. 1 s Input current 1 s Current consumption (rated value) 1 250 mA Current consumption (in no-load operation), typ. 500 mA Inrush current, typ. 4 A I*t 1.2 A*.s Power loss Power loss, typ. Power loss, typ. 14 W Memory 2 560 kbyte • expandable No Load memory • • Plug-in (MMC), max. 8 Mbyte • Data management on MMC (after last programming), min. 10 y Backup • Yes • without battery Yes CPU processing times 0.004 µs	permissible range, lower limit (DC)	19.2 V
(recommendation) Mains buffering • Mains/voltage failure stored energy time 5 ms • Repeat rate, min. 1 s Input current 1 250 mA Current consumption (rated value) 1 250 mA Current consumption (in no-load operation), typ. 500 mA Inrush current, typ. 4 A I*t 1, 2*s Power loss Power loss Power loss, typ. 14 W Memory • • integrated 2 560 kbyte • expandable No Load memory • • Plug-in (MMC), max. 8 Mbyte • Data management on MMC (after last programming), min. 10 y Backup • • present Yes • without battery Yes CPU processing times 0.004 µs	permissible range, upper limit (DC)	28.8 V
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Inrush current, typ. 4 A I²t 1.2 A²-s Power loss Power loss, typ. 14 W Memory Work memory • integrated 2 560 kbyte • expandable No 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 • without battery Yes CPU processing times 0.004 µs	Current consumption (rated value)	1 250 mA
Pt 1.2 A²-s Power loss 14 W Memory 14 W Work memory 2 560 kbyte • integrated 2 560 kbyte • expandable No Load memory Plug-in (MMC) • Plug-in (MMC), max. 8 Mbyte • Data management on MMC (after last programming), min. 10 y Backup • present • present Yes • processing times 0.004 μs	Current consumption (in no-load operation), typ.	500 mA
Power loss Power loss, typ. 14 W Memory Work memory 2 560 kbyte • integrated 2 560 kbyte • expandable No Load memory • Plug-in (MMC) Yes • Plug-in (MMC), max. 8 Mbyte • Data management on MMC (after last programming), min. 10 y Backup Yes • present Yes • without battery Yes • Dotoperations, typ. 0.004 µs	Inrush current, typ.	4 A
Power loss, typ. 14 W Memory Work memory • integrated 2 560 kbyte • expandable No Load memory Plug-in (MMC) • Plug-in (MMC), max. 8 Mbyte • Data management on MMC (after last programming), min. 10 y Backup • present • without battery Yes • Dprocessing times 0.004 μs	²t	1.2 A ² ·s
Memory Work memory • integrated 2 560 kbyte • expandable No Load memory • Plug-in (MMC) Yes • Plug-in (MMC), max. 8 Mbyte • Data management on MMC (after last programming), min. 10 y Backup Yes • present Yes • without battery Yes CPU processing times 0.004 μs	Power loss	
Work memory • integrated 2 560 kbyte • expandable No 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 • without battery Yes CPU processing times 0.004 µs	Power loss, typ.	14 W
• integrated2 560 kbyte• expandableNoLoad memory• Plug-in (MMC)Yes• Plug-in (MMC), max.8 Mbyte• Data management on MMC (after last programming), min.10 yBackup• presentYes• without batteryYesCPU processing times0.004 μs	Memory	
• expandable No 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 • without battery Yes CPU processing times 0.004 μs	Work memory	
Load memory Yes • Plug-in (MMC), max. 8 Mbyte • Data management on MMC (after last programming), min. 10 y Backup ves • present Yes • without battery Yes CPU processing times 0.004 μs	 integrated 	2 560 kbyte
• Plug-in (MMC) Yes • Plug-in (MMC), max. 8 Mbyte • Data management on MMC (after last programming), min. 10 y Backup 10 y • present Yes • without battery Yes CPU processing times 0.004 μs	expandable	No
• Plug-in (MMC), max. 8 Mbyte • Data management on MMC (after last programming), min. 10 y Backup 10 y • present Yes • without battery Yes CPU processing times 0.004 μs	Load memory	
• Data management on MMC (after last programming), min. 10 y Backup • present • present Yes • without battery Yes CPU processing times 0.004 μs	 Plug-in (MMC) 	Yes
programming), min. Backup • present Yes • without battery Yes CPU processing times 0.004 μs	 Plug-in (MMC), max. 	8 Mbyte
• present Yes • without battery Yes CPU processing times for bit operations, typ. 0.004 μs		10 у
• without battery Yes CPU processing times for bit operations, typ. 0.004 µs	Backup	
CPU processing times for bit operations, typ. 0.004 µs	• present	Yes
for bit operations, typ. 0.004 µs	 without battery 	Yes
	CPU processing times	
for word operations, typ. 0.01 µs	for bit operations, typ.	0.004 µs
	for word operations, typ.	0.01 µs
for fixed point arithmetic, typ. 0.01 µs	for fixed point arithmetic, typ.	0.01 µs

for floating point arithmetic, typ.	0.04 µs
CPU-blocks	
Number of blocks (total)	4 096; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	
● Number, max.	4 096; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
 Number, max. 	4 096; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
• Number, max.	4 096; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
• 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 (OB 35: smallest settable clock pulse = 500 $\mu s)$
 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
 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	0.040
Number	2 048
Retentivity — adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	Z 0 to Z 7
Counting range	
Counting range — adjustable	Yes
— adjustable	Yes 0
— adjustable — lower limit	Yes 0 999
— adjustable	0
— adjustable — lower limit — upper limit	0
 adjustable lower limit upper limit IEC counter 	0 999
 adjustable lower limit upper limit IEC counter present 	0 999 Yes
 adjustable lower limit upper limit IEC counter present Type 	0 999 Yes SFB
 adjustable lower limit upper limit IEC counter present Type Number 	0 999 Yes SFB
 adjustable lower limit upper limit IEC counter present Type Number S7 times	0 999 Yes SFB Unlimited (limited only by RAM capacity)
 adjustable lower limit upper limit IEC counter present Type Number S7 times Number 	0 999 Yes SFB Unlimited (limited only by RAM capacity)
 adjustable lower limit upper limit IEC counter present Type Number S7 times Number Retentivity	0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0
 adjustable lower limit upper limit IEC counter present Type Number S7 times Number Retentivity adjustable lower limit upper limit 	0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0 2 047
 adjustable lower limit upper limit IEC counter present Type Number S7 times Number Retentivity adjustable lower limit upper limit preset 	0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0
 adjustable lower limit upper limit IEC counter present Type Number S7 times Number Retentivity adjustable lower limit upper limit preset Time range	0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0 2 047 No retentivity
 adjustable lower limit upper limit IEC counter present Type Number S7 times Number Retentivity adjustable lower limit upper limit preset Time range lower limit 	0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0 2 047 No retentivity 10 ms
 adjustable lower limit upper limit IEC counter present Type Number S7 times Number Retentivity adjustable lower limit upper limit preset Time range lower limit upper limit upper limit upper limit upper limit upper limit upper limit 	0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0 2 047 No retentivity
 adjustable lower limit upper limit IEC counter present Type Number S7 times Number Retentivity adjustable lower limit upper limit preset Time range lower limit upper limit upper limit upper limit upper limit lower limit IEC timer	0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0 2 047 No retentivity 10 ms 9 990 s
 adjustable lower limit upper limit IEC counter present Type Number S7 times Number Retentivity adjustable lower limit upper limit preset Time range lower limit upper limit upper limit upper limit preset Iter time range lower limit upper limit upper limit upper limit upper limit IEC timer present 	0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0 2 047 No retentivity 10 ms 9 990 s
 adjustable lower limit upper limit IEC counter present Type Number S7 times Number Retentivity adjustable lower limit upper limit preset Time range lower limit upper limit upper limit upper limit upper limit lower limit IEC timer	0 999 Yes SFB Unlimited (limited only by RAM capacity) 2 048 Yes 0 2 047 No retentivity 10 ms 9 990 s

Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	700 kbyte
Flag	
• Size, max.	8 192 byte
 Retentivity available 	Yes; From MB 0 to MB 8 191
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. 	32 768 byte; Max. 2048 bytes per block
Address area	
I/O address area	
Inputs	8 192 byte
Outputs	8 192 byte
of which distributed	
— Inputs	8 192 byte
— Outputs	8 192 byte
Process image	
• Inputs	8 192 byte
Outputs	8 192 byte
 Inputs, adjustable 	8 192 byte
Outputs, adjustable	8 192 byte
Inputs, default	1 024 byte
Outputs, default	1 024 byte
Subprocess images	10210310
Number of subprocess images, max.	1; With PROFINET IO, the length of the user data is limited to 1600
	bytes
Digital channels	
Inputs	65 536
— of which central	1 024
Outputs	65 536
— of which central	1 024
Analog channels	
Inputs	4 096
— of which central	256
Outputs	4 096
— of which central	256
Hardware configuration	
Number of DP masters	
• integrated	2
• 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
Time of day	
Clock	Ver
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 Behavior of the clock following expiry of backup 	Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred

period	
Operating hours counter	
• Number	4
Number/Number range	0 to 3
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	0
Digital outputs	
Number of digital outputs	0
Analog inputs	·
Number of analog inputs	0
Analog outputs	
Number of analog outputs	0
	0
Interfaces	1
Number of industrial Ethernet interfaces	1
Number of PROFINET interfaces	1
Number of RS 485 interfaces	2
Number of RS 422 interfaces	0
1. Interface	Integrated DC 405 interface
1. Interface Interface type	Integrated RS 485 interface
1. Interface Interface type Isolated	Integrated RS 485 interface Yes
1. Interface Interface type Isolated Interface types	Yes
1. Interface Interface type Isolated Interface types • RS 485	Yes
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max.	Yes
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols	Yes Yes 150 mA
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI	Yes Yes 150 mA Yes
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master	Yes Yes 150 mA Yes Yes
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave	Yes Yes 150 mA Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection	Yes Yes 150 mA Yes Yes
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection	Yes Yes 150 mA Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible No
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max.	Yes Yes 150 mA Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max. Services	Yes Yes 150 mA Yes Yes; A DP slave at both interfaces simultaneously is not possible No 12 Mbit/s
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max. Services — PG/OP communication	Yes Yes 150 mA Yes Yes; A DP slave at both interfaces simultaneously is not possible No 12 Mbit/s Yes
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max. Services - PG/OP communication - Routing	Yes Yes 150 mA Yes Yes; A DP slave at both interfaces simultaneously is not possible No 12 Mbit/s
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max. Services — PG/OP communication	Yes Yes 150 mA Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible No 12 Mbit/s Yes Yes
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, 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	Yes Yes 150 mA Yes Yes; A DP slave at both interfaces simultaneously is not possible No 12 Mbit/s Yes Yes Yes
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, 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	Yes Yes 150 mA Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible No 12 Mbit/s Yes Yes Yes Yes Yes
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, 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 — S7 communication, as client	Yes Yes 150 mA Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible No 12 Mbit/s Yes Yes Yes Yes Yes
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, 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	Yes Yes 150 mA Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible No 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes No; but via CP and loadable FB
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, 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, as client - S7 communication, as server	Yes Yes 150 mA Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible No 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes No; but via CP and loadable FB
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, 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, as client — S7 communication, as server PROFIBUS DP master	Yes Yes 150 mA Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible No 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, 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, as client — S7 communication, as server PROFIBUS DP master • Transmission rate, max.	Yes Yes 150 mA Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible No 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, 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 - S7 communication, as client - S7 communication, as server PROFIBUS DP master • Transmission rate, max. • Number of DP slaves, max.	Yes Yes 150 mA Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible No 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, 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 - S7 communication - S7 communication, as client - S7 communication, as server PROFIBUS DP master • Transmission rate, max. • Number of DP slaves, max. Services	Yes Yes 150 mA Yes Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible No 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
1. Interface Interface type Isolated Interface types • RS 485 • Output current of the interface, 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 - S7 communication, as server PROFIBUS DP master • Transmission rate, max. • Number of DP slaves, max. • Number of DP slaves, max. Services - PG/OP communication	Yes Yes 150 mA Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible No 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye

 — 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
- SYNC/FREEZE	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	Yes; as subscriber
communication)	N
- DPV1	Yes
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 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; with interface active
 — 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 	Yes
communication)	
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
Interface type	Integrated RS 485 interface
Isolated	Yes
Interface types	
• RS 485	Yes
 Output current of the interface, 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; A DP slave at both interfaces simultaneously is not possible
Open IE communication	No
Web server	No
PROFIBUS DP master	
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	124
Number of DP slaves, max.	
 Number of DP slaves, max. Services 	124

 — Global data communication 	No
 — S7 basic communication 	Yes; I blocks only
— S7 communication	Yes
- S7 communication, as client	No
— S7 communication, as server	Yes; Connection configured on one side only
— Equidistance	Yes
— Isochronous mode	Yes; OB 61 - isochronous mode is possible either on DP or PROFINET
	IO (not simultaneously)
- SYNC/FREEZE	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	Yes; as subscriber
communication)	Vee
— DPV1	Yes
Address area	0 khuda
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
PROFIBUS DP slave	
• GSD file	The latest GSD file is available at: 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; with interface active
 — 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	Yes
communication)	
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
3. Interface	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes; 10/100 Mbit/s
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	Yes
Interface types	
RJ 45 (Ethernet)	Yes
Number of ports	2
integrated switch	Yes
Protocols	
• MPI	No
PROFINET IO Controller	Yes; Also simultaneously with I-Device functionality
PROFINET IO Controller PROFINET IO Device	Yes; Also simultaneously with IO Controller functionality
PROFINET NO DEvice PROFINET CBA	Yes
PROFIBUS DP master	No
PROFIBUS DP master PROFIBUS DP slave	No
- FROTIDUS DE SIQVE	

Open IE communication	Yes; Via TCP/IP, ISO on TCP, and UDP
Web server	Yes
Media redundancy	Yes
PROFINET IO Controller	103
Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes
- Routing	Yes
- S7 communication	Yes; with loadable FBs, max. configurable connections: 16, max.
	number of instances: 32
— Isochronous mode	Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously)
— Shared device	Yes
— Prioritized startup	Yes
 Number of IO devices with prioritized startup, max. 	32
 Number of connectable IO Devices, max. 	256
— 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" 	256
— of which in line, max.	61
 — Number of connectable IO Devices for RT, 	256
max.	200
— of which in line, max.	256
 Activation/deactivation of IO Devices 	Yes
 Number of IO Devices that can be simultaneously activated/deactivated, max. 	8
 — IO Devices changing during operation (partner ports), supported 	Yes
 — 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.	8 kbyte
— Outputs, max.	8 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: 16, 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 device,	2
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

	Yes
cyclic transmission Open IE communication	100
Number of connections, max.	32
 Local port numbers used at the system end 	0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964,
 Keep-alive function, supported 	65532, 65533, 65534, 65535 Yes
Protocols	
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	
• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.	32
 Data length for connection type 01H, max. 	1 460 byte
 Data length for connection type 11H, max. 	32 768 byte
 ISO-on-TCP (RFC1006) 	Yes; via integrated PROFINET interface and loadable FBs
 Number of connections, max. 	32
— Data length, max.	32 768 byte
• UDP	Yes; via integrated PROFINET interface and loadable FBs
 — Number of connections, max. 	32
— Data length, max.	1 472 byte
Web server	
 supported 	Yes
 User-defined websites 	Yes
 Number of HTTP clients 	5
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 (21) nackets may	177 DV/TA
 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 22 byte
• Size of GD packet (of which consistent), max. S7 basic communication	22 byte
 Size of GD packet (of which consistent), max. S7 basic communication supported 	22 byte Yes
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. 	22 byte Yes 76 byte
 Size of GD packet (of which consistent), max. S7 basic communication supported 	22 byte Yes
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. User data per job (of which consistent), max. 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. User data per job (of which consistent), max. S7 communication 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. User data per job (of which consistent), max. S7 communication supported 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server) Yes
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. User data per job (of which consistent), max. S7 communication supported as server 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server) Yes Yes Yes; via integrated PROFINET interface and loadable FB or via CP and
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. User data per job (of which consistent), max. S7 communication supported as server as client 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server) Yes Yes Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB See online help of STEP 7 (shared parameters of the SFBs/FBs and of
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. User data per job (of which consistent), max. S7 communication supported as server as client User data per job, max. 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server) Yes Yes Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB See online help of STEP 7 (shared parameters of the SFBs/FBs and of
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. User data per job (of which consistent), max. S7 communication supported as server as client User data per job, max. S5 compatible communication 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server) Yes Yes Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. User data per job (of which consistent), max. S7 communication supported as server as client User data per job, max. S5 compatible communication supported 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server) Yes Yes Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. User data per job (of which consistent), max. S7 communication supported as server as client User data per job, max. S5 compatible communication supported supported PROFINET CBA (at set setpoint communication load) 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server) Yes Yes Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication) Yes; via CP and loadable FC
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. User data per job (of which consistent), max. S7 communication supported as server as client User data per job, max. S5 compatible communication supported PROFINET CBA (at set setpoint communication load) Setpoint for the CPU communication load 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server) Yes Yes Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication) Yes; via CP and loadable FC 20 %
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. User data per job (of which consistent), max. S7 communication supported as server as client User data per job, max. S5 compatible communication supported PROFINET CBA (at set setpoint communication load) Setpoint for the CPU communication load Number of remote interconnection partners 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server) Yes Yes Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication) Yes; via CP and loadable FC 20 % 32
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. User data per job (of which consistent), max. S7 communication supported as server as client User data per job, max. S5 compatible communication supported PROFINET CBA (at set setpoint communication load) Setpoint for the CPU communication load Number of remote interconnection partners Number of functions, master/slave Total of all master/slave connections 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server) Yes Yes Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication) Yes; via CP and loadable FC 20 % 32 50
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. User data per job (of which consistent), max. S7 communication supported as server as client User data per job, max. S5 compatible communication supported PROFINET CBA (at set setpoint communication load) Setpoint for the CPU communication load Number of remote interconnection partners Number of functions, master/slave 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server) Yes Yes Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication) Yes; via CP and loadable FC 20 % 32 50 3 000
 Size of GD packet (of which consistent), max. S7 basic communication supported User data per job, max. User data per job (of which consistent), max. S7 communication supported as server as client User data per job, max. S5 compatible communication supported PROFINET CBA (at set setpoint communication load) Setpoint for the CPU communication load Number of remote interconnection partners Number of functions, master/slave Total of all master/slave connections Data length of all incoming connections 	22 byte Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server) Yes Yes Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication) Yes; via CP and loadable FC 20 % 32 50 3 000

master/slave, max.	
Number of device-internal and PROFIBUS	1 000
interconnections	
 Data length of device-internal und PROFIBUS interconnections, max. 	8 000 byte
 Data length per connection, max. 	1 400 byte
Remote interconnections with acyclic transmission	
— Sampling interval, min.	200 ms
 — Number of incoming interconnections 	100
 — Number of outgoing interconnections 	100
 Data length of all incoming interconnections, max. 	3 200 byte
 Data length of all outgoing interconnections, max. 	3 200 byte
 — Data length per connection, max. 	1 400 byte
Remote interconnections with cyclic transmission	
 Transmission frequency: Transmission interval, min. 	1 ms
 — Number of incoming interconnections 	300
 — Number of outgoing interconnections 	300
 Data length of all incoming interconnections, max. 	4 800 byte
 Data length of all outgoing interconnections, max. 	4 800 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 	600
 — Data length of all HMI variables, max. 	9 600 byte
PROFIBUS proxy functionality	
— supported	Yes
 — Number of linked PROFIBUS devices 	32
— Data length per connection, max.	240 byte; Slave-dependent
Number of connections	
overall	32
 usable for PG communication 	31
- reserved for PG communication	1
 — adjustable for PG communication, min. 	1
 adjustable for PG communication, max. 	31
 usable for OP communication 	31
— reserved for OP communication	1
— adjustable for OP communication, min.	1
— adjustable for OP communication, max.	31
usable for S7 basic communication	30
- reserved for S7 basic communication	0
— adjustable for S7 basic communication, min.	0
— adjustable for S7 basic communication, max.	30
usable for S7 communication	16
- reserved for S7 communication	0
— adjustable for S7 communication, min.	0
— adjustable for S7 communication, max.	16
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 DP master: max. 24; X2 as DP slave (active): max. 14; X3 as PROFINET: 48 max.
S7 message functions	
Number of login stations for message functions, max.	32; Depending on the configured connections for PG/OP and S7 basic communication
Process diagnostic messages	Yes
r roosoo alagnoolio moosageo	100

Test commissioning functions Yes, Up to 2 simultaneously Status block Yes, Up to 2 simultaneously Single step Yes Number of breakpoints 4 Status doubted Yes • Variables Inputs, outputs, memory bits, DB, times, counters • Variables Inputs, outputs, memory bits, DB, times, counters • Orichig Yes • Forcing Yes • Forcing, variables, max. 14 • Forcing Yes • Number of entries, max. 10 • Build out anables, max. 10 • Forcing Yes • Number of entries, max. 500 - adjustable No - of which powerfail-proof 100 - adjustable Yes - adjustable Yes - and barband control variables, max. 60° C - adjustable Yes - adjustable Yes - adjustable Yes - adjustable Yes - preset 0 °C Configuration software See instruction list • System function blocks (SFB)	simultaneously active Alarm-S blocks, max.	300
Status block Yes: Up to 2 simultaneously Single step Yes Number of variables 4 StatusControl variables Inputs, outputs, memory bits, DB, times, counters • Variables Inputs, outputs, memory bits, DB, times, counters • Variables Inputs, outputs, memory bits, DB, times, counters • of which status variables, max. 30 - of which control variables, max. 14 Forcing * Forcing, variables • Forcing, variables Inputs, outputs • Forcing, variables Inputs, outputs • Aumber of entries, max. 500 - of which powerfail-proof 100 • Number of entries, readable in RUN, max. 499 - adjustable Yes, From 10 to 499 adjustable Yes - Starte 0 °C adjustable Yes adjustable Yes <td></td> <td></td>		
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• can be read out Yes Ambient conditions • min. • min. 0 °C • max. 60 °C Configuration • Configuration software • STEP 7 Yes; V5.5 or higher Programming • enax. • 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 - STL Yes - SCL Yes - SCL Yes - SCL Yes - GRAPH Yes - HiGraph® Yes Know-how protection/password protection Yes; With S7 block Privacy Dimensions 120 mm Width 120 mm Height 130 mm Veights 1250 g		10
Ambient conditions Ambient temperature during operation • min. 0 °C • max. 60 °C Configuration Configuration software • STEP 7 Yes; V5.5 or higher Programming 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 - SL Yes - SCL Yes - CFC Yes - GRAPH Yes - HiGraph® Yes Know-how protection Yes • Block encryption Yes Width 120 mm Height 126 mm Depth 130 mm		Vec
Ambient temperature during operation 0 °C • min. 0 °C • max. 60 °C Configuration 60 °C Configuration software 60 °C • STEP 7 Yes; V5.5 or higher Programming see instruction list • Command set see instruction list • Nesting levels 8 • System function blocks (SFC) see instruction list • System function blocks (SFB) see instruction list Programming language - - LAD Yes - FBD Yes - SCL Yes - CFC Yes - GRAPH Yes - HiGraph® Yes Know-how protection Yes • Block encryption Yes; With S7 block Privacy Dimensions 120 mm Width 125 mm Depth 130 mm Weight, approx. 1 250 g		res
• min. 0 °C • max. 60 °C Configuration - Configuration software - • STEP 7 Yes; V5.5 or higher Programming - • Command set see instruction list • Nesting levels 8 • System function blocks (SFC) see instruction list • System function blocks (SFB) see instruction list • FBD Yes - SCL Yes - SCL Yes - GRAPH Yes - HiGraph® Yes • User program protection/password protection Yes; With S7 block Privacy Dimensions 125 mm		
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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/password protection Yes Vidth 120 mm Height 125 mm Depth 130 mm Weight, approx. 1 250 g		60 °C
• 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 - STL Yes - SCL Yes - GRAPH Yes - HiGraph® Yes Width 120 mm Height 125 mm Depth 130 mm Weight, approx. 1 250 g	Configuration	
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