Data sheet

SIMATIC S7-300, CPU 317F-2DP, Central processing unit with 1.5 MB work memory, 1st interface MPI/DP 12 Mbit/s, 2nd interface DP master/slave Micro Memory Card required Can be used with software package S7 Distributed Safety V5.2 SP1 or higher



General information	
HW functional status	01
Firmware version	V3.3
Engineering with	
Programming package	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.2 + SP1 or higher with HSP 202 + Distributed Safety
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)	2 A min.
Input current	
Current consumption (rated value)	870 mA
Current consumption (in no-load operation), typ.	120 mA
Inrush current, typ.	4 A
l²t	1 A ² ·s

Power loss			
Power loss, typ.	4.5 W		
Memory			
Work memory			
• integrated	1 536 kbyte		
• expandable	No		
 Size of retentive memory for retentive data blocks 	256 kbyte		
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.	0.025 μs		
for word operations, typ.	0.03 µs		
for fixed point arithmetic, typ.	0.04 μs		
for floating point arithmetic, typ.	0.16 μs		
CPU-blocks	CPU-blocks		
Number of blocks (total)	2 048; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.		
DB			
Number, max.	2 048; Number range: 1 to 16000		
• Size, max.	64 kbyte		
FB			
Number, max.	2 048; Number range: 0 to 7999		
• Size, max.	64 kbyte		
FC			
Number, max.	2 048; Number range: 0 to 7999		
• Size, max.	64 kbyte		
ОВ			
Description	see instruction list		
• Size, max.	64 kbyte		
 Number of free cycle OBs 	1; OB 1		
 Number of time alarm OBs 	1; OB 10		
 Number of delay alarm OBs 	2; OB 20, 21		
 Number of cyclic interrupt OBs 	4; OB 32, 33, 34, 35		
 Number of process alarm OBs 	1; OB 40		

Number of DPV1 alarm OBs	3; OB 55, 56, 57
 Number of isochronous mode OBs 	1; OB 61
 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	
S7 counter	
• Number	512
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	511
— 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	512
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	511
— preset	No retentivity
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)

Data areas and their retentivity	
retentive data area in total	All, max. 256 KB
Flag	
• Number, max.	4 096 byte

Retentivity available	Yes; From MB 0 to MB 4 095
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	
Number of subprocess images, max.	1
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 expansion units, max.	3
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	10
• Racks, max.	4
Modules per rack, max.	8
Modules per rack, max.	
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	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	No
Profession	
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
Interfaces	
Number of industrial Ethernet interfaces	0
Number of PROFINET interfaces	0

Number of RS 485 interfaces	2
Number of RS 422 interfaces	0
1. 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	Yes
 PROFIBUS DP master 	Yes
 PROFIBUS DP slave 	Yes; A DP slave at both interfaces simultaneously is not possible
Point-to-point connection	No
MPI	
Transmission rate, max.	12 Mbit/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
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
— 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	8
simultaneously activated/deactivated, max.	Vac. As subscriber
 — Direct data exchange (slave-to-slave communication) 	Yes; As subscriber
— DPV1	Yes

Address area - Inputs, max Outputs, max
- Outputs, max. User data per DP slave Inputs, max Outputs, max
User data per DP slave
Inputs, max Outputs, max Outputs, max Outputs, max Outputs, max Outputs, max Outputs, max Outputs praise Transmission rate, max automatic baud rate search Address area, max Outputs per address area, max Outputs
- Outputs, max. PROFIBUS DP slave 1 Transmission rate, max. 1 automatic baud rate search Address area, max. 2 User data per address area, max. 2 User data per address area, max. 3 2 byte Services - PG/OP communication Routing Rout
PROFIBUS DP slave Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. Peg/OP communication Routing Routin
Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. Perocess PG/OP communication Sorvices PG/OP communication No Sorvices Sorvices PG/OP communication No Sorvices Sorvices Porest data exchange (slave-to-slave communication) DPV1 No Poptol No Transfer memory Inputs Duty Sorvices Solated Physics Solated Power supply to interface (15 to 30 V DC), max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No PSes: Only with passive interface Yes; Only with passive interface No Yes Only with passive interface Yes Only with active interface No Yes Only with active interface No Yes Only with active interface No Yes Only with passive interface Yes Only with active interface No
automatic baud rate search Address area, max. User data per address area, max. 2 byte Services - PG/OP communication Routing - Global data communication - S7 basic communication - S7 communication, as client - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs 244 byte - Outputs 244 byte 2. Interface Interface type Physics RS 485 Isolated - Yes Power supply to interface (15 to 30 V DC), max. Protocols - MPI - PROFIBUS DP master - PROFIBUS DP slave - Point-to-point connection - S2 communication - No - No - S7 communication - No - S7 communication - No - No - S7 communication - No
Address area, max. User data per address area, max. 22 byte Services - PG/OP communication Yes - Routing Yes; Only with active interface - Global data communication No - S7 basic communication Yes; Only server, configured on one side - S7 communication, as client No - S7 communication, as server Yes; Connection configured on one side only - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs 244 byte - Outputs 244 byte 2. Interface Interface type Integrated RS 485 interface Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection No
User data per address area, max. Services - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication, as client - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 Transfer memory - Inputs - Outputs 244 byte 2. Interface Interface type - Physics - RS 485 - Soluted - Yes - Power supply to interface (15 to 30 V DC), max PROFIBUS DP master - PROFIBUS DP slave - Point-to-point connection - Yes; Only server, configured on one side - No - Yes; Connection configured on one side only - Yes; Connection configured on one side only - Yes - Yes - Yes - Power supply to interface (15 to 30 V DC), max Yes - PROFIBUS DP master - PROFIBUS DP slave - Point-to-point connection - No
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; Connection configured on one side only - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs 244 byte - Outputs 244 byte 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 Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection No
PG/OP communication PG/OP communication PRouting PGIobal data communication PS7 basic communication PS7 communication, as client PS7 communication, as server PS8 connection configured on one side only PS8 connection configured on one side PS8 configured on one side No PS8 connection configured on one side PS8 configured on one side No PS8 connection configured on one side No PS8 configured on one side
Routing Yes; Only with active interface Global data communication No S7 basic communication Yes; Only server, configured on one side S7 communication, as client No S7 communication, as server Yes; Connection configured on one side only Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs 244 byte Outputs 244 byte 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 Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No
- Global data communication - S7 basic communication No - S7 communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as client - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs 244 byte 2. Interface Interface type Interface type Interface type Physics RS 485 Isolated - Yes Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection No
- Global data communication - S7 basic communication No - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs 244 byte 2. Interface type Interface type Physics RS 485 Isolated - Yes Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection No
- S7 communication - S7 communication, as client - S7 communication, as client No - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs 244 byte 2. Interface Interface type Physics RS 485 Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection Yes; Only server, configured on one side No No Yes; Connection configured on one side No No Yes; Connection configured on one side No No Yes; Connection configured on one side No No Yes Connection configured on one side No No Yes Connection configured on one side No No No Yes 244 byte 244 byte 244 byte 244 byte 244 byte 244 byte 247 byte 248 binterface Procedure No No No Protocols PROFIBUS DP master Yes PROFIBUS DP slave Point-to-point connection No
- S7 communication - S7 communication, as client - S7 communication, as server - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs 244 byte 2. Interface Interface type Interface type Physics RS 485 Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection No Yes; Connection configured on one side No Yes; Connection configured on one side No Yes; Connection configured on one side No
— S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs — Outputs 244 byte 2. Interface Interface type Interface type Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection Yes; Connection configured on one side only Yes Yes; Connection configured on one side only Yes Yes Yes Yes Interface AND Yes Ves Yes Yes Yes A DP slave at both interfaces simultaneously is not possible No No
- S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs 244 byte - Outputs 2. Interface Interface type Interface type Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection Yes Yes Connection configured on one side only Yes Yes Interface only Yes Yes Yes Yes Yes Yes Connection configured on one side only Yes Yes Yes Yes Yes A B DP slave at both interface simultaneously is not possible No
Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs 244 byte Outputs 244 byte 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 Protocols MPI No PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No
communication) — DPV1 No Transfer memory — Inputs 244 byte — Outputs 244 byte 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 Protocols • MPI No • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection No
Transfer memory — Inputs — Outputs 244 byte 244 byte 245 byte 246 byte 247 byte 248 byte 249 byte 249 byte 249 byte 249 byte 240 byte 240 byte 241 byte 241 byte 242 byte 241 byte 242 byte 243 byte 244 byte 245 byte 246 byte 247 byte RS 485 interface RS 485 RS
- Inputs - Outputs 244 byte 2. Interface Interface type Integrated RS 485 interface Physics RS 485 Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection 244 byte 244 byte Integrated RS 485 interface RS 485 RS 485 Yes Pos Pos Pos Pos Pos Pos Pos P
Outputs
Interface type Interface type Physics RS 485 Isolated Power supply to interface (15 to 30 V DC), max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection Integrated RS 485 interface RS 485 Ves Yes Yes Yes Yes Yes Yes Yes
Interface type Physics RS 485 Isolated Power supply to interface (15 to 30 V DC), max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection Integrated RS 485 interface RS 485 Yes Yes Yes Yes A DP slave at both interfaces simultaneously is not possible No
Interface type Physics RS 485 Isolated Power supply to interface (15 to 30 V DC), max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection Integrated RS 485 interface RS 485 Yes Yes Yes Yes Yes Yes Yes Ye
Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. 200 mA Protocols • MPI No • PROFIBUS DP master Yes • PROFIBUS DP slave Yes; A DP slave at both interfaces simultaneously is not possible • Point-to-point connection
Isolated Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection Yes Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible No
Power supply to interface (15 to 30 V DC), max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection No 200 mA No Yes Yes Yes; A DP slave at both interfaces simultaneously is not possible No
Protocols
 MPI PROFIBUS DP master PROFIBUS DP slave PROFIBUS DP slave Point-to-point connection No
 PROFIBUS DP master PROFIBUS DP slave Point-to-point connection Yes Yes; A DP slave at both interfaces simultaneously is not possible No
 PROFIBUS DP slave Point-to-point connection Yes; A DP slave at both interfaces simultaneously is not possible No
• Point-to-point connection No
PROFIBUS DP master
• Transmission rate, max. 12 Mbit/s
Number of DP slaves, max. 124
Services
DO/OD : (: Voo
— PG/OP communication— RoutingYesYes

- S7 basic communication Yes; I blocks only - S7 communication Yes; Only server, configured on one side - S7 communication, as client - S7 communication, as server - S7 communication, as server - Equidistance - Yes - Equidistance - Isochronous mode - SYNC/FREEZE - Activation/deactivation of DP slaves - Number of DP slaves that can be simultaneously activated/deactivated, max Direct data exchange (slave-to-slave communication) - DPV1 - Yes - Number of DP slaves that can be simultaneously activated/deactivated, max Direct data exchange (slave-to-slave communication) - DPV1 - Yes - Address area - Inputs, max Outputs, max Outputs - Ou	 Global data communication 	No
- S7 communication, as client - S7 communication, as server - Equidistance - Isochronous mode - SYNC/FREEZE - Activation/deactivation of DP slaves - Number of DP slaves that can be simultaneously activated/deactivated, max Direct data exchange (slave-to-slave communication) - DPV1 - Yes - Inputs, max Outputs, m	 — S7 basic communication 	Yes; I blocks only
— S7 communication, as server — Equidistance — Isochronous mode — SYNC/FREZE — Activation/deactivation of DP slaves — Number of DP slaves that can be simultaneously activated/deactivated, max. — Direct data exchange (slave-to-slave communication) — DPV1 — Yes Address area — Inputs, max. — 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. • automatic baud rate search • Address area, max. • User data per address area, max. 32 • User data per address area, max. • User data per DP slave • Ordination on the Internet (http://www.siemens.com/profibus-gsd) • Transfer per address area, max. • User data per DP slave • Outputs, max. • User data per DP slave • Outputs, max. • User data per DP slave • Outputs, max. • User data per DP slave • Outputs, max.	— S7 communication	Yes; Only server, configured on one side
- Equidistance - Isochronous mode - Isochronous mode - SYNC/FREZE - Activation/ideactivation of DP slaves - Number of DP slaves that can be simultaneously activated/deactivated, max Direct data exchange (slave-to-slave communication) - DPV1 - Yes Address area - Inputs, max Outputs, max Outpu	 — S7 communication, as client 	No; but via CP and loadable FB
	 S7 communication, as server 	Yes
- SYNC/FREZE - Activation/deactivation of DP slaves - Number of DP slaves that can be simultaneously activated/deactivated, max Direct data exchange (slave-to-slave communication) - DPV1 - Address area - Inputs, max Outputs, max	— Equidistance	Yes
— Activation/deactivation of DP slaves — Number of DP slaves that can be simultaneously activated/deactivated, max. — Direct data exchange (slave-to-slave communication) — DPV1 Yes Address area — Inputs, max. — Outputs, max. — 1nputs, max. — 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. • automatic baud rate search • Address area, max. • User data per address area, max. • User data per address area, max. • User data per address area, max. Services — PG/OP communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs Yes 244 byte	— Isochronous mode	Yes; OB 61
- Number of DP slaves that can be simultaneously activated/deactivated, max. - Direct data exchange (slave-to-slave communication) - DPV1 Yes Address area - Inputs, max. - Outputs, max.	— SYNC/FREEZE	Yes
simultaneously activated/deactivated, max. — Direct data exchange (slave-to-slave communication) — DPV1 Address area — Inputs, max. — Outputs, max.	 Activation/deactivation of DP slaves 	Yes
communication) — DPV1 Yes Address area — Inputs, max. 8 192 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 Yes — Routing Yes; Only with active interface — Global data communication No — S7 basic communication No — S7 communication, as client Yes; Only server, configured on one side — S7 communication, as server Yes — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs		8
Address area - Inputs, max Outputs, max		Yes; As subscriber
- Inputs, max Outputs, max Outputs, max Outputs, max Inputs, max Inputs, max Outputs, max	— DPV1	Yes
User data per DP slave — Inputs, max. — Outputs, max. — Outpu	Address area	
User data per DP slave — Inputs, max. — Outputs, max. — Outputs, max. — Outputs, max. — Outputs, max. — GSD file • 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 • Address area, max. • User data per address area, max. • User data per address area, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 Transfer memory — Inputs 244 byte	— Inputs, max.	8 192 byte
Inputs, max Outputs, max Outputs, max Outputs, max Outputs, max. PROFIBUS DP slave • GSD file The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) • Transmission rate, max. • automatic baud rate search • Address area, max. • User data per address area, max. • User data per address area, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication, as client S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs Tassfer memory Inputs Tassfer memory 244 byte	— Outputs, max.	8 192 byte
PROFIBUS DP slave • GSD file The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) • Transmission rate, max. • automatic baud rate search • Address area, max. • User data per address area, max. 32 • User data per address area, 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 — Direct data exchange (slave-to-slave communication) — DPV1 Transfer memory — Inputs Tasser wax. 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. • automatic baud rate search • Address area, max. • User data per address area, max. 32 • User data per address area, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs	— Inputs, max.	244 byte
The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) Transmission rate, max. It a Mbit/s automatic baud rate search Address area, max. User data per address area, max. PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication, as client S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs Passive interface Address area, max. 12 Mbit/s Yes; only with passive interface 22 byte 32 byte 32 byte 32 byte 32 byte 33 byte 34 byte	— Outputs, max.	244 byte
(http://www.siemens.com/profibus-gsd) • Transmission rate, max. • automatic baud rate search • Address area, max. • User data per address area, 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 - Direct data exchange (slave-to-slave communication) - DPV1 Transfer memory - Inputs 12 Mbit/s 12 Mbit/s 12 Mbit/s 12 Mbit/s 14 Mbit/s 14 Mbit/s 15 Mbit/s 16 Address area, max. 32 byte 32 byte 32 byte 32 byte 32 byte 32 byte	PROFIBUS DP slave	
 automatic baud rate search Address area, max. User data per address area, max. PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication S7 communication S7 communication, as client S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 Transfer memory Inputs Yes; only with passive interface 32 Yes Only with active interface No No S7 configured on one side No; but via CP and loadable FB Yes Only server, configured on one side No; but via CP and loadable FB Yes One No 	• GSD file	
 Address area, max. User data per address area, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs 32 48 59 49 49 49 49 49 49 49 49 49 44 40 44 44 45 46 47 48 49 49 49 44 45 46 47 48 49 49 49 44 45 46 47 48 49 49 49 44 40 	Transmission rate, max.	12 Mbit/s
● User data per address area, max. Services	automatic baud rate search	Yes; only with passive interface
Services - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication, as client - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 Transfer memory - Inputs Yes Yes Only with active interface No No No No No No Yes; Only server, configured on one side No; but via CP and loadable FB Yes Yes Yes Yes Object data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs	 Address area, max. 	32
 — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs Yes; Only server, configured on one side No; but via CP and loadable FB Yes Yes Yes 244 byte 	User data per address area, max.	32 byte
 Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication, as client S7 communication, as server S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs Yes; Only with active interface No 	Services	
- Global data communication - S7 basic communication No - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs No No No No No No 244 byte	— PG/OP communication	
 S7 basic communication S7 communication S7 communication, as client S7 communication, as server S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs No Yes <li< td=""><td>— Routing</td><td>Yes; Only with active interface</td></li<>	— Routing	Yes; Only with active interface
 S7 communication S7 communication, as client S7 communication, as client S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs Yes; Only server, configured on one side No; but via CP and loadable FB Yes Yes	 Global data communication 	
 — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 Transfer memory — Inputs No; but via CP and loadable FB Yes Yes No 244 byte 		
 — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs Yes Yes<!--</td--><td></td><td></td>		
 — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs Yes Yes<!--</td--><td>, , , , , , , , , , , , , , , , , , ,</td><td></td>	, , , , , , , , , , , , , , , , , , ,	
communication) — DPV1 No Transfer memory — Inputs 244 byte		
Transfer memory — Inputs 244 byte		Yes
— Inputs 244 byte	— DPV1	No
	Transfer memory	
— Outputs 244 byte	— Inputs	· · ·
	— 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.	See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)
S5 compatible communication	
• supported	Yes; via CP and loadable FC
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 routing	X1 as a 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

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
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
— adjustable	Yes; From 10 to 499
— preset	10
Service data	
● can be read out	Yes
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
• 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	40 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	360 g
last modified:	06/20/2019