Data sheet

SIMATIC S7-300 CPU 315-2 PN/DP, Central processing unit with 384 KB work memory, 1st interface MPI/DP 12 Mbit/s, 2nd interface Ethernet PROFINET, with 2-port switch, Micro Memory Card required



General information	
HW functional status	01
Firmware version	V3.2
Engineering with	
Programming package	STEP 7 V5.5 or higher
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 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)	750 mA
Current consumption (in no-load operation), typ.	150 mA

Inrush current, typ.	4 A
l²t	1 A ² ·s
	17. 3
Power loss	
Power loss, typ.	4.65 W
Memory	
Work memory	
• integrated	384 kbyte
• expandable	No
 Size of retentive memory for retentive data blocks 	128 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.	0.05 μs
for word operations, typ.	0.09 μs
for fixed point arithmetic, typ.	0.12 μs
for floating point arithmetic, typ.	0.45 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	can be reduced by the limite accu.
Number, max.	1 024; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
FC FC	
Number, max.	1 024; 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 delay alarm OBs Number of cyclic interrupt OBs	4; OB 32, 33, 34, 35
Hamber of Gyone interrupt Obs	.,,,,

 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	
Number	256
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	Z 0 to Z 7
Counting range	
— adjustable	Yes
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
S7 times	
Number	256
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	No retentivity
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	

Data areas and their retentivity	
retentive data area in total	All, 128 KB max.

Flag	
Number, max.	2 048 byte
Retentivity available	Yes; MB 0 to MB 2 047
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	2 048 byte
Outputs	2 048 byte
of which distributed	
— Inputs	2 048 byte
— Outputs	2 048 byte
Process image	
• Inputs	2 048 byte
Outputs	2 048 byte
Inputs, adjustable	2 048 byte
 Outputs, adjustable 	2 048 byte
 Inputs, default 	128 byte
 Outputs, default 	128 byte
Subprocess images	
 Number of subprocess images, max. 	1; With PROFINET IO, the length of the user data is limited to 1600 bytes
Digital channels	
● Inputs	16 384
— of which central	1 024
Outputs	16 384
— of which central	1 024
Analog channels	
• Inputs	1 024
— of which central	256
Outputs	1 024
— of which central	256
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
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 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

Interfaces	
Number of industrial Ethernet interfaces	1; 2 ports (switch) RJ45
Number of PROFINET interfaces	1; 2 ports (switch) RJ45
Number of RS 485 interfaces	1; Combined MPI / PROFIBUS DP
Number of RS 422 interfaces	0
1. Interface	
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
 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
 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
— S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO
— SYNC/FREEZE	Yes
Activation/deactivation of DP slaves	Yes
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 Number of DP slaves that can be simultaneously activated/deactivated, max. 	8
 — Direct data exchange (slave-to-slave communication) 	Yes; As subscriber
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
User data per DP slave	·
— Inputs, max.	244 byte
— Outputs, max.	244 byte
PROFIBUS DP slave	
Transmission rate, max.	12 Mbit/s
automatic baud rate search	Yes; only with passive interface
Address area, max.	32
User data per address area, max.	32 byte
Services	
— PG/OP communication	Yes
— Routing	Yes; Only with active interface
Global data communication	No
S7 basic communication	No
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes; Connection configured on one side only
Direct data exchange (slave-to-slave)	Yes
communication)	
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
Interface type	PROFINET
Physics	Ethernet RJ45
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	
Number of ports	2
• integrated switch	Yes
Media redundancy	

• supported	Yes
 Switchover time on line break, typ. 	200 ms; PROFINET MRP
Number of stations in the ring, max.	50
Protocols	
• MPI	No
 PROFINET IO Controller 	Yes; Also simultaneously with IO-Device functionality
PROFINET IO Device	Yes; Also simultaneously with IO Controller functionality
• PROFINET CBA	Yes
 PROFIBUS DP master 	No
 PROFIBUS DP slave 	No
Open IE communication	Yes; Via TCP/IP, ISO on TCP, and UDP
• Web server	Yes
PROFINET IO Controller	
Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— S7 communication	Yes; With loadable FBs, max. configurable connections: 14, max. number of instances: 32
— Isochronous mode	Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO
— Open IE communication	Yes; Via TCP/IP, ISO on TCP, and UDP
— IRT	Yes
— Shared device	Yes
— Prioritized startup	Yes
 Number of IO devices with prioritized startup, max. 	32
— Number of connectable IO Devices, max.	128
 Of which IO devices with IRT, max. 	64
— of which in line, max.	64
 Number of IO Devices with IRT and the option "high flexibility" 	128
— of which in line, max.	61
 Number of connectable IO Devices for RT, max. 	128
— of which in line, max.	128
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	$250~\mu\text{s},500~\mu\text{s},1~\text{ms};2~\text{ms},4~\text{ms}$ (not in the case of IRT with "high flexibility" option)
— Updating time	250 μs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, Technical Data" for more details)
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
 User data consistency, max. 	1 024 byte
PROFINET IO Device	
Services	
— PG/OP communication	Yes
— Routing	Yes
— S7 communication	Yes; With loadable FBs, max. configurable connections: 14, max. number of instances: 32
— Isochronous mode	No
 Open IE communication 	Yes; Via TCP/IP, ISO on TCP, and UDP
— 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, max. 	2
Transfer memory	
— Inputs, max.	1 440 byte; Per IO Controller with shared device
— Outputs, max.	1 440 byte; Per IO Controller with shared device
Submodules	
— Number, max.	64
 User data per submodule, max. 	1 024 byte
PROFINET CBA	
acyclic transmission	Yes
• cyclic transmission	Yes
Open IE communication	
Number of connections, max.	8
 Local port numbers used at the system end 	0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535
 Keep-alive function, supported 	Yes
Protocols	
Open IE communication	
• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
 Number of connections, max. 	8
— Data length for connection type 01H, max.	1 460 byte

- several passive connections per port, supported • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. — Data length, max. — Data length, max. — Data length, max. — Number of connections, max. — Data length, max. — Ves; via integrated PROFINET interface and loadable FBs 8 — Number of Connections, max. • Number of HTTP clients — Ves • User-defined websites • Ves • User-defined websites • Ves • User-defined websites • Ves • Number of HTTP clients — Ves • Ves • Ves • Ves • Ves • Via PROFIBUS DP or PROFINET interface **PROFIDED PROFINET interface **PROFIDED PROFINET interface **Ves • Ves • Sich of Gata communication • Ves • Sich of Gata communication • Supported • Supported • Number of GD packets, max. • Number of GD packets, receiver, max. • Sick of GD packets, receiver, max. • Si		
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UDP Yes; via integrated PROFINET interface and loadable FBs ● UDP Yes; via integrated PROFINET interface and loadable FBs ● Data length, max. 1 472 byte Web server ● supported Yes ● User-defined websites Yes ● Number of HTTP clients 5 Sochronous mode Isochronous operation (application synchronized up to terminal) Communication functions PG/OP communication Yes Slobal data communication ● supported Yes ● Number of GD pockets, max. 8 ● Number of GD packets, max. 8 ● Number of GD packets, max. 8 ● Number of GD packets, max. 8 ● Size of GD packets, max. 8 ● Size of GD packets, max. 22 byte Size of GD packets, max. 22 byte Size of GD packet (of which consistent), max. 22 byte Size of GD packet (of which consistent), max. 76 byte ● User data per job, max. 76 byte ● User data per job (of which consistent), max. 76 byte ■ User data per job (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ User data per job (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ User data per job (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte ■ Size of GD packet (of which consistent), max. 76 byte	,	
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X_PUT or X_GET as server) S7 communication • supported • as server • as client • 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	 User data per job, max. 	76 byte
 supported as server as client 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) supported Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB User data per job, max. See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication) S5 compatible communication Yes; via CP and loadable FC 	• User data per job (of which consistent), max.	
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and of the SFCs/FCs of S7 Communication) S5 compatible communication • supported Yes; via CP and loadable FC	• as client	
• supported Yes; via CP and loadable FC	• User data per job, max.	
**************************************	S5 compatible communication	
PROFINET CBA (at set setpoint communication load)	• supported	Yes; via CP and loadable FC
	PROFINET CBA (at set setpoint communication load)	

Number of remote interconnection partners Number of functions, master/slave Total of all master/slave connections Data length of all incoming connections master/slave, max. Data length of all outgoing connections master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length of device-internal und PROFIBUS interconnections with acyclic transmission — Sampling frequency: Sampling time, min. — Number of incoming interconnections — Number of outgoing interconnections — Number of outgoing interconnections — Data length of all outgoing interconnections, max. — Data length of all outgoing interconnections, max. — Data length of all outgoing interconnections with acyclic transmission — Transmission frequency: Transmission — Transmission frequency: Transmission — Transmission frequency: Transmission — Transmission frequency: Transmission — Number of outgoing interconnections — Number of incoming interconnections — Number of incoming interconnections — Number of outgoing interconnections — Number of outgoing interconnections — Number of incoming interconnections — Number of incoming interconnections — Data length of all outgoing interconnections, max. — Data length of all outgoing interconnections — Number of Hill variables — Data length of POPI/Map) — HMI variables via PROFINET (acyclic) — Number of Hill variables, max. POPI/Ix iMap PYes Number of Inlave PROFIBUS devices — Data length per connection, max. Data length of all HMI variables, max. POPI/Ix iMap PYes Number of Inlave PROFIBUS devices — Data length per connection, max. PYes Number of connections	Setpoint for the CPU communication load	50 %
Number of functions, master/slave Total of all master/slave connections Data length of all incoming connections master/slave, max. Data length of all outgoing connections master/slave, max. Number of device-internal and PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max. Thumber of incoming interconnections Number of outgoing interconnections Number of outgoing interconnections Data length of all incoming interconnections, max. Data length of all outgoing interconnections, max. Data length of all outgoing interconnections, max. Data length of all outgoing interconnections with cyclic transmission Transmission frequency: Transmission Transmission frequency: Transmission Transmission frequency: Transmission interval, min. Number of incoming interconnections Data length of all loutgoing interconnections, max. Data length of all houtgoing Data length of all loutgoing Data length of all loutgoing Data length of all loutgoing		32
Data length of all incoming connections master/slave, max. Data length of all outgoing connections master/slave, max. Number of device-internal and PROFIBUS interconnections, max. Data length of evice-internal und PROFIBUS interconnections, max. Data length per connection, max. Data length per connection, max. Tamber of interconnections with acyclic transmission Sampling frequency: Sampling time, min. Number of outgoing interconnections Number of outgoing interconnections Data length of all incoming interconnections Data length of all outgoing interconnections, max. Data length per connection, max. Transmission interval, min. Number of incoming interconnections Number of incoming interconnections Transmission frequency: Transmission Transmission frequency: Transmission Transmission frequency: Transmission Transmission frequency: Transmission 200 Data length of all incoming interconnections Number of incoming interconnections 200 Data length of all incoming 2000 byte interconnections, max. Data length of all outgoing 2000 byte interconnections, max. Data length of all outgoing 32 2000 byte interconnections, max. Data length of all outgoing 33; 2x PN OPC/1x iMap variables (PN OPC/Map) HMI variable sia PROFINET (acyclic) Number of HMI variables 200 Data length of all HMI variables, max. POFIBUS proxy functionality Supported 4 Yes Data length per connection, max. POSITION PC/FM portions and per onnection, max. POSITION PC/FM portions and per onnection proximate and per onnection proxi		30
master/slave, max. Data length of all outgoing connections master/slave, max. Number of device-internal and PROFIBUS interconnections, max. Data length per connection, max. Data length per connection, max. Thumber of interconnections with expelic transmission Sampling frequency: Sampling time, min. Number of incoming interconnections Data length of all incoming interconnections Data length of all outgoing interconnections Transmission frequency: Transmission Transmission frequency: Transmission Transmission frequency: Transmission Transmission frequency: Transmission Data length of all outgoing interconnections Number of incoming interconnections Data length of all incoming interconnections Data length of all outgoing interconnections, max. Data length of all outgoing interconnections on the connection, max. Data length of all outgoing interconnections on the connection interconnections, max. Data length of all outgoing interconnections.	Total of all master/slave connections	1 000
master/slave, max. • Number of device-internal and PROFIBUS interconnections • Data length of device-internal und PROFIBUS interconnections, max. • Data length per connection, max. • Data length per connection, max. • Data length per connections with acyclic transmission — Sampling frequency: Sampling time, min. — Number of incoming interconnections — Number of outgoing interconnections — Number of outgoing interconnections — Data length of all incoming interconnections — Data length of all outgoing interconnections, max. — Data length of all outgoing interconnections, max. — Data length per connection, max. 1 400 byte Remote interconnections with cyclic transmission — Transmission frequency: Transmission interval, min. — Number of incoming interconnections — Data length of all incoming interconnections — Data length of all incoming interconnections, max. — Data length of all outgoing 2 000 byte interconnections, max. — Data length of all outgoing 2 2000 byte interconnections, max. — Data length of all outgoing 3 2 000 byte interconnections, max. — Data length per connection, max. 450 byte HMI variables via PROFINET (acyclic) — Number of stations that can log on for HMI variables (PN OPC/Map) — HMI variable updating 500 ms — Number of HMI variables 200 — Data length of all HMI variables, max. PROFIBUS proxy functionality — supported Yes — Number of linked PROFIBUS devices 16 — Number of linked PROFIBUS devices 16 — Data length per connection, max.		4 000 byte
interconnections Data length of device-internal und PROFIBUS interconnections, max. Data length per connection, max. 1 400 byte Remote interconnections with acyclic transmission — Sampling frequency: Sampling time, min. Number of incoming interconnections Number of outgoing interconnections 100 — Data length of all incoming interconnections — Data length of all outgoing interconnections — Data length of all outgoing 2 000 byte interconnections, max. — Data length per connection, max. 1 400 byte Remote interconnections with cyclic transmission — Transmission frequency: Transmission interval, min. — Number of incoming interconnections — Number of outgoing interconnections — Data length of all incoming interconnections — Data length of all outgoing 2 000 byte interconnections, max. — Data length of all outgoing 2 000 byte interconnections, max. — Data length of all outgoing 2 000 byte interconnections, max. — Data length per connection, max. 450 byte HMI variables via PROFINET (acyclic) — Number of stations that can log on for HMI variables (PN OPC/fMap) — HMI variable updating 500 ms — Number of HMI variables — Data length of all HMI variables, max. PROFIBUS proxy functionality — supported Yes — Data length per connection, max. 2 400 byte; Slave-dependent		4 000 byte
interconnections, max. ■ Data length per connection, max. Remote interconnections with acyclic transmission — Sampling frequency: Sampling time, min. — Number of incoming interconnections — Number of outgoing interconnections — Data length of all incoming interconnections, max. — Data length of all outgoing interconnections, max. — Data length per connection, max. — Data length of all outgoing interconnections with cyclic transmission — Transmission frequency: Transmission interval, min. — Number of incoming interconnections — Data length of all incoming interconnections, max. — Data length of all incoming interconnections, max. — Data length of all outgoing interconnections, max. — Data length of all outgoing interconnections, max. — Data length of stations that can log on for HMI variables via PROFINET (acyclic) — Number of stations that can log on for HMI variables via PROFINET (acyclic) — Number of HMI variables — Data length of all HMI variables, max. PROFIBUS proxy functionality — supported — Number of linked PROFIBUS devices — Data length per connection, max. 240 byte; Slave-dependent		500
Remote interconnections with acyclic transmission Sampling frequency: Sampling time, min. Number of incoming interconnections Number of outgoing interconnections Data length of all incoming interconnections, max. Data length of all outgoing interconnections, max. Data length per connection, max. 1 400 byte Remote interconnections with cyclic transmission Transmission frequency: Transmission interval, min. Number of incoming interconnections Data length of all outgoing interconnections with cyclic transmission Transmission frequency: Transmission interval, min. Number of outgoing interconnections Data length of all incoming interconnections, max. Data length of all outgoing interconnections, max. Data length of all outgoing interconnections, max. Data length of stations that can log on for HMI variables via PROFINET (acyclic) Number of stations that can log on for HMI variables (PN OPC/fMap) HMI variable updating Number of HMI variables Data length of all HMI variables, max. Post length of all HMI variables, max. Post length of all HMI variables, max. 2000 PROFIBUS proxy functionality Supported Number of linked PROFIBUS devices Data length per connection, max. 240 byte; Slave-dependent		4 000 byte
- Sampling frequency: Sampling time, min Number of incoming interconnections - Number of outgoing interconnections - Data length of all incoming interconnections, max Data length of all outgoing interconnections, max Data length per connection, max. 1 400 byte Remote interconnections with cyclic transmission - Transmission frequency: Transmission interval, min Number of incoming interconnections - Number of outgoing interconnections - Number of outgoing interconnections - Data length of all outgoing interconnections, max Data length of all outgoing interconnections, max Data length per connection, max Data length per onnection, max Data length per onnection, max Data length per dill outgoing interconnections in a 2000 byte HMI variables via PROFINET (acyclic) - Number of stations that can log on for HMI variables (PN OPC/fiMap) - HMI variable updating - Number of HMI variables - Data length of all HMI variables, max. 2 000 byte PROFIBUS proxy functionality - supported - Number of linked PROFIBUS devices - Data length per connection, max. 2 400 byte; Slave-dependent	 Data length per connection, max. 	1 400 byte
- Number of incoming interconnections - Number of outgoing interconnections - Data length of all incoming interconnections, max Data length of all outgoing interconnections, max Data length per connection, max. 1 400 byte Remote interconnections with cyclic transmission - Transmission frequency: Transmission interval, min Number of incoming interconnections - Number of outgoing interconnections - Data length of all outgoing interconnections, max Data length of all outgoing interconnections, max Data length per connection, max. 450 byte HMI variables via PROFINET (acyclic) - Number of stations that can log on for HMI variables (PN OPC/fMap) - HMI variable updating - Number of HMI variables - Data length of all HMI variables, max. 2 000 byte PROFIBUS proxy functionality - supported - Number of linked PROFIBUS devices - Data length per connection, max. 2 400 byte; Slave-dependent	Remote interconnections with acyclic transmission	
- Number of outgoing interconnections - Data length of all incoming interconnections, max Data length of all outgoing interconnections, max Data length of all outgoing interconnections, max Data length per connection, max Data length per connection, max Data length per connection, max. 1 400 byte Remote interconnections with cyclic transmission - Transmission frequency: Transmission interval, min Number of incoming interconnections - Number of outgoing interconnections - Data length of all incoming interconnections, max Data length of all outgoing interconnections, max Data length of all outgoing interconnections, max Data length per connection, max. - Data length per on fistations that can log on for HMI variables (PN OPC/IMap) - HMI variable updating - Number of HMI variables - Data length of all HMI variables, max. - Data length of all HMI variables, max. - Data length of all HMI variables, max. 2 000 byte - Number of linked PROFIBUS devices - Data length per connection, max. 240 byte; Slave-dependent	 — Sampling frequency: Sampling time, min. 	500 ms
- Data length of all incoming interconnections, max. - Data length of all outgoing interconnections, max. - Data length per connection, max. - Data length per connection, max. - Data length per connection, max. 1 400 byte Remote interconnections with cyclic transmission - Transmission frequency: Transmission interval, min. - Number of incoming interconnections - Number of outgoing interconnections - Data length of all incoming interconnections, max. - Data length of all outgoing interconnections, max. - 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) - HMI variable updating - Number of HMI variables - Data length of all HMI variables, max. 200 200 200 byte - Number of HMI variables, max. 200 - Data length of all HMI variables, max. 200 - Data length of all HMI variables, max. - Data length of all HMI variables devices - Data length of all HMI variables devices - Data length per connection, max. 450 byte - Number of HMI variables, max. 200 byte	 Number of incoming interconnections 	100
interconnections, max. — Data length of all outgoing interconnections, max. — Data length per connection, max. 1 400 byte Remote interconnections with cyclic transmission — Transmission frequency: Transmission interval, min. — Number of incoming interconnections — Number of outgoing interconnections — Data length of all incoming interconnections — Data length of all outgoing interconnections, max. — Data length of all outgoing interconnections, max. — 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) — HMI variable updating 500 ms — Number of HMI variables 200 — Data length of all HMI variables, max. 2000 byte PROFIBUS proxy functionality — supported — Number of linked PROFIBUS devices 16 — Data length per connection, max. 240 byte; Slave-dependent	 Number of outgoing interconnections 	100
interconnections, max. — Data length per connection, max. 1 400 byte Remote interconnections with cyclic transmission — Transmission frequency: Transmission interval, min. — Number of incoming interconnections — Number of outgoing interconnections — Data length of all incoming interconnections, max. — Data length of all outgoing interconnections, max. — Data length of all outgoing interconnections, max. — 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) — HMI variable updating — Number of HMI variables, max. 2 000 byte PROFIBUS proxy functionality — supported — Number of linked PROFIBUS devices — Data length per connection, max. 2 400 byte; Slave-dependent		2 000 byte
Remote interconnections with cyclic transmission — Transmission frequency: Transmission interval, min. — Number of incoming interconnections 200 — Number of outgoing interconnections 200 — Data length of all incoming interconnections, max. — Data length of all outgoing interconnections, max. — 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) — HMI variable updating — Number of HMI variables — Data length of all HMI variables, max. PROFIBUS proxy functionality — supported — Number of linked PROFIBUS devices — Data length per connection, max. 200 210 ms 2200 240 byte 240 byte; Slave-dependent		2 000 byte
— Transmission frequency: Transmission interval, min. — Number of incoming interconnections 200 — Number of outgoing interconnections 200 — Data length of all incoming 2 000 byte interconnections, max. — Data length of all outgoing 2 000 byte interconnections, max. — 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) — HMI variable updating 500 ms — Number of HMI variables 200 — Data length of all HMI variables, max. 2 000 byte PROFIBUS proxy functionality — supported Yes — Number of linked PROFIBUS devices 16 — Data length per connection, max. 240 byte; Slave-dependent	 Data length per connection, max. 	1 400 byte
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— Data length of all incoming interconnections, max. — Data length of all outgoing 2 000 byte interconnections, max. — 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) — HMI variable updating 500 ms — Number of HMI variables 200 — Data length of all HMI variables, max. 2 000 byte PROFIBUS proxy functionality — supported Yes — Number of linked PROFIBUS devices 16 — Data length per connection, max. 240 byte; Slave-dependent	 Number of incoming interconnections 	200
interconnections, max. — Data length of all outgoing interconnections, max. — 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) — HMI variable updating 500 ms — Number of HMI variables 200 — Data length of all HMI variables, max. 2 000 byte PROFIBUS proxy functionality — supported Yes — Number of linked PROFIBUS devices 16 — Data length per connection, max. 240 byte; Slave-dependent	 Number of outgoing interconnections 	200
interconnections, max. — 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) — HMI variable updating — Number of HMI variables — Number of all HMI variables, max. PROFIBUS proxy functionality — supported — Number of linked PROFIBUS devices — Data length per connection, max. 240 byte; Slave-dependent		2 000 byte
HMI variables via PROFINET (acyclic) - Number of stations that can log on for HMI variables (PN OPC/iMap) - HMI variable updating - Number of HMI variables - Number of all HMI variables, max. PROFIBUS proxy functionality - supported - Number of linked PROFIBUS devices - Data length per connection, max. 240 byte; Slave-dependent		2 000 byte
 Number of stations that can log on for HMI variables (PN OPC/iMap) HMI variable updating Number of HMI variables Data length of all HMI variables, max. PROFIBUS proxy functionality supported Number of linked PROFIBUS devices Data length per connection, max. 3; 2x PN OPC/1x iMap 400 ms 400 byte 	 Data length per connection, max. 	450 byte
variables (PN OPC/iMap) — HMI variable updating 500 ms — Number of HMI variables 200 — Data length of all HMI variables, max. 2 000 byte PROFIBUS proxy functionality — supported Yes — Number of linked PROFIBUS devices 16 — Data length per connection, max. 240 byte; Slave-dependent	HMI variables via PROFINET (acyclic)	
 Number of HMI variables Data length of all HMI variables, max. PROFIBUS proxy functionality supported Number of linked PROFIBUS devices Data length per connection, max. 200 2 000 byte Yes Supported Yes Yes		3; 2x PN OPC/1x iMap
 — Data length of all HMI variables, max. PROFIBUS proxy functionality — supported — Number of linked PROFIBUS devices — Data length per connection, max. 2 000 byte Yes — 16 — Data length per connection, max. 240 byte; Slave-dependent 	— HMI variable updating	500 ms
PROFIBUS proxy functionality — supported — Number of linked PROFIBUS devices — Data length per connection, max. Yes 16 240 byte; Slave-dependent	 Number of HMI variables 	200
 — supported — Number of linked PROFIBUS devices — Data length per connection, max. Yes 16 240 byte; Slave-dependent 	 Data length of all HMI variables, max. 	2 000 byte
 Number of linked PROFIBUS devices Data length per connection, max. 240 byte; Slave-dependent 	PROFIBUS proxy functionality	
— Data length per connection, max. 240 byte; Slave-dependent	— supported	Yes
	 Number of linked PROFIBUS devices 	16
Number of connections	 Data length per connection, max. 	240 byte; Slave-dependent
	Number of connections	

• overall	16
 usable for PG communication 	15
 reserved for PG communication 	1
— adjustable for PG communication, min.	1
— adjustable for PG communication, max.	15
 usable for OP communication 	15
 reserved for OP communication 	1
— adjustable for OP communication, min.	1
— adjustable for OP communication, max.	15
 usable for S7 basic communication 	14
 reserved for S7 basic communication 	0
 adjustable for S7 basic communication, 	0
min.	
 adjustable for S7 basic communication, 	14
max.	
 usable for S7 communication 	14
 reserved for S7 communication 	0
— adjustable for S7 communication, min.	0
— adjustable for S7 communication, max.	14
• total number of instances, max.	32
• usable for routing	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.

S7 message functions	
Number of login stations for message functions, max.	16; 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	
Ctatus block	Vege I In to 2 simultaneously

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; V5.5 or higher
Programming	
Command set	see instruction list
 Nesting levels 	8
System functions (SFC)	see instruction list
System function blocks (SFB)	see instruction list
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
Know-how protection	
 User program protection/password protection 	Yes
 Block encryption 	Yes; With S7 block Privacy
Dimensions	
Width	40 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	340 g
	12/09/2019

last modified:

12/08/2018