6ES7318-3FL01-0AB0

## **Data sheet**



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

General information	
HW functional status	01
Firmware version	V3.2
Product function	
Isochronous mode	Yes; Via 2nd PROFIBUS DP or PROFINET interface
Engineering with	
<ul> <li>Programming package</li> </ul>	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	
<ul> <li>Mains/voltage failure stored energy time</li> </ul>	5 ms
Repeat rate, min.	1 s
Input current	
Current consumption (rated value)	1 250 mA
Current consumption (in no-load operation), typ.	500 mA
Inrush current, typ.	4 A
l²t	1.2 A <sup>2</sup> ·s
Power loss	
Power loss, typ.	14 W
Memory	
Work memory	
• integrated	2 560 kbyte
• expandable	No
Load memory	
<ul><li>Plug-in (MMC)</li></ul>	Yes
<ul><li>Plug-in (MMC), max.</li></ul>	8 Mbyte
<ul> <li>Data management on MMC (after last programming), min.</li> </ul>	10 a
Backup	
• present	Yes
<ul><li>without battery</li></ul>	Yes
CPU processing times	
for bit operations, typ.	0.004 μs
for word operations, 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	
<ul><li>Number, max.</li></ul>	4 096; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
<ul> <li>Number, max.</li> </ul>	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
<ul> <li>Number of free cycle OBs</li> </ul>	1; OB 1
<ul> <li>Number of time alarm OBs</li> </ul>	1; OB 10
<ul> <li>Number of delay alarm OBs</li> </ul>	2; OB 20, 21
<ul> <li>Number of cyclic interrupt OBs</li> </ul>	4; OB 32, 33, 34, 35 (OB 35: smallest settable clock pulse = 500 μs)
<ul> <li>Number of process alarm OBs</li> </ul>	1; OB 40
<ul> <li>Number of DPV1 alarm OBs</li> </ul>	3; OB 55, 56, 57
<ul> <li>Number of isochronous mode OBs</li> </ul>	1; OB 61
<ul> <li>Number of startup OBs</li> </ul>	1; OB 100
<ul> <li>Number of asynchronous error OBs</li> </ul>	6; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO)
<ul> <li>Number of synchronous error OBs</li> </ul>	2; OB 121, 122
Nesting depth	
per priority class	16
<ul> <li>additional within an error OB</li> </ul>	4
Counters, timers and their retentivity	
S7 counter	
<ul><li>Number</li></ul>	2 048
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— 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	2 048
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	No retentivity
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
<ul><li>present</li><li>Type</li></ul>	Yes SFB
•	
<ul><li>Type</li><li>Number</li></ul>	SFB
• Type	SFB
Type  Number  Data areas and their retentivity	SFB Unlimited (limited only by RAM capacity)
Type  Number  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.	SFB Unlimited (limited only by RAM capacity)

- Determinate property	MD 0 to MD 45
Retentivity preset	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
Data blocks	V
Retentivity adjustable	Yes; via non-retain property on DB
Retentivity preset	Yes
Local data	00 700 1 4 44 00 40 1 4 1 1
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
<ul><li>Outputs</li></ul>	8 192 byte
<ul> <li>Inputs, adjustable</li> </ul>	8 192 byte
<ul> <li>Outputs, adjustable</li> </ul>	8 192 byte
<ul> <li>Inputs, default</li> </ul>	1 024 byte
Outputs, default	1 024 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	65 536
— of which central	1 024
<ul> <li>Outputs</li> </ul>	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)	7
FM	0
	8
• CP, PtP	8
• CP, LAN	10
Rack	
• Racks, max.	4
Modules per rack, max.	8
Time of day	
Clock	
<ul> <li>Hardware clock (real-time)</li> </ul>	Yes
<ul> <li>retentive and synchronizable</li> </ul>	Yes
Backup time	6 wk; At 40 °C ambient temperature
<ul> <li>Deviation per day, max.</li> </ul>	10 s; Typ.: 2 s
<ul> <li>Behavior of the clock following POWER-ON</li> </ul>	Clock continues running after POWER OFF
Behavior of the clock following expiry of backup period	the clock continues at the time of day it had when power was switched off
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

<ul><li>◆ to MPI, master</li></ul>	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	
	0
Number of analog outputs	0
Interfaces	
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	
Interface type	Integrated RS 485 interface
Isolated	Yes
Interface types	
• RS 485	Yes
Output current of the interface, max.	150 mA
Protocols	
• MPI	Yes
<ul> <li>PROFIBUS DP master</li> </ul>	Yes
<ul> <li>PROFIBUS DP slave</li> </ul>	Yes; A DP slave at both interfaces simultaneously is not possible
<ul> <li>Point-to-point connection</li> </ul>	No
MPI	
MPI  ● Transmission rate, max.	12 Mbit/s
	12 Mbit/s
Transmission rate, max.	12 Mbit/s Yes
Transmission rate, max.  Services	
Transmission rate, max.  Services  — PG/OP communication	Yes
<ul> <li>Transmission rate, max.</li> <li>Services         <ul> <li>PG/OP communication</li> <li>Routing</li> </ul> </li> </ul>	Yes Yes
<ul> <li>Transmission rate, max.</li> <li>Services         <ul> <li>PG/OP communication</li> <li>Routing</li> <li>Global data communication</li> </ul> </li> </ul>	Yes Yes Yes
<ul> <li>Transmission rate, max.</li> <li>Services         <ul> <li>PG/OP communication</li> <li>Routing</li> <li>Global data communication</li> <li>S7 basic communication</li> <li>S7 communication</li> </ul> </li> </ul>	Yes Yes Yes
<ul> <li>Transmission rate, max.</li> <li>Services         <ul> <li>PG/OP communication</li> <li>Routing</li> <li>Global data communication</li> <li>S7 basic communication</li> <li>S7 communication</li> <li>S7 communication</li> <li>S7 communication, as client</li> </ul> </li> </ul>	Yes Yes Yes Yes Yes Yes Yes No; but via CP and loadable FB
<ul> <li>Transmission rate, max.</li> <li>Services         <ul> <li>PG/OP communication</li> <li>Routing</li> <li>Global data communication</li> <li>S7 basic communication</li> <li>S7 communication</li> </ul> </li> </ul>	Yes Yes Yes Yes Yes Yes
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	Yes
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.	Yes Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes
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
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.  Services	Yes Yes Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124
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.  Services — PG/OP communication	Yes Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes
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.  Services — PG/OP communication — Routing	Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes Yes
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.  Services — PG/OP communication — Routing — Global data communication	Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes Yes No
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.  Services  — PG/OP communication — Routing — Global data communication — S7 basic communication	Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes Yes No Yes; I blocks only
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.  Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication	Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes Yes No Yes; I blocks only Yes
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.  Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication — S7 communication, as client	Yes Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes Yes No Yes; I blocks only Yes No
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.  Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server	Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes Yes No Yes; I blocks only Yes No Yes; Only Yes
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.  Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server — Equidistance	Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes Yes No Yes; I blocks only Yes No Yes Yes
<ul> <li>Transmission rate, max.</li> <li>Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server</li> <li>PROFIBUS DP master  • Transmission rate, max. • Number of DP slaves, max.</li> <li>Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server — Equidistance — Isochronous mode</li> </ul>	Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes Yes No Yes; I blocks only Yes No Yes No Yes No Yes No
Transmission rate, max.  Services  — PG/OP communication — Routing — Global data communication — \$7 basic communication — \$7 communication — \$7 communication, as client — \$7 communication, as server  PROFIBUS DP master  Transmission rate, max.  Number of DP slaves, max.  Services  — PG/OP communication — Routing — Global data communication — \$7 basic communication — \$7 communication — \$7 communication — \$7 communication, as client — \$7 communication, as server — Equidistance — Isochronous mode — \$YNC/FREEZE	Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes Yes No Yes; I blocks only Yes No Yes No Yes Yes No Yes Yes No Yes
<ul> <li>Transmission rate, max.</li> <li>Services  — PG/OP communication — Routing — Global data communication — \$7 basic communication — \$7 communication — \$7 communication, as client — \$7 communication, as server</li> <li>PROFIBUS DP master  • Transmission rate, max. • Number of DP slaves, max.</li> <li>Services  — PG/OP communication — Routing — Global data communication — \$7 basic communication — \$7 communication — \$7 communication — \$7 communication, as client — \$7 communication, as server — Equidistance — Isochronous mode — \$YNC/FREEZE — Activation/deactivation of DP slaves</li> </ul>	Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes Yes No Yes; I blocks only Yes No Yes No Yes Yes No Yes Yes Yes No Yes Yes Yes
<ul> <li>Transmission rate, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— \$7 basic communication</li> <li>— \$7 communication, as client</li> <li>— \$7 communication, as server</li> <li>PROFIBUS DP master</li> <li>Transmission rate, max.</li> <li>Number of DP slaves, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— \$7 basic communication</li> <li>— \$7 communication</li> <li>— \$7 communication, as client</li> <li>— \$7 communication, as server</li> <li>— Equidistance</li> <li>— Isochronous mode</li> <li>— \$YNC/FREEZE</li> <li>— Activation/deactivation of DP slaves</li> <li>— Number of DP slaves that can be simultaneously</li> </ul>	Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes Yes No Yes; I blocks only Yes No Yes No Yes Yes No Yes Yes No Yes
<ul> <li>Transmission rate, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— S7 basic communication</li> <li>— S7 communication, as client</li> <li>— S7 communication, as server</li> <li>PROFIBUS DP master</li> <li>Transmission rate, max.</li> <li>Number of DP slaves, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— S7 basic communication</li> <li>— S7 communication</li> <li>— S7 communication, as client</li> <li>— S7 communication, as server</li> <li>— Equidistance</li> <li>— Isochronous mode</li> <li>— SYNC/FREEZE</li> <li>— Activation/deactivation of DP slaves</li> <li>— Number of DP slaves that can be simultaneously activated/deactivated, max.</li> </ul>	Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes Yes No Yes; I blocks only Yes No Yes Yes
<ul> <li>Transmission rate, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— \$7 basic communication</li> <li>— \$7 communication, as client</li> <li>— \$7 communication, as server</li> <li>PROFIBUS DP master</li> <li>Transmission rate, max.</li> <li>Number of DP slaves, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— \$7 basic communication</li> <li>— \$7 communication</li> <li>— \$7 communication, as client</li> <li>— \$7 communication, as server</li> <li>— Equidistance</li> <li>— Isochronous mode</li> <li>— \$YNC/FREEZE</li> <li>— Activation/deactivation of DP slaves</li> <li>— Number of DP slaves that can be simultaneously activated/deactivated, max.</li> <li>— Direct data exchange (slave-to-slave)</li> </ul>	Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes Yes No Yes; I blocks only Yes No Yes No Yes Yes No Yes Yes Yes No Yes Yes Yes
<ul> <li>◆ Transmission rate, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— \$7 basic communication</li> <li>— \$7 communication, as client</li> <li>— \$7 communication, as server</li> <li>PROFIBUS DP master</li> <li>● Transmission rate, max.</li> <li>● Number of DP slaves, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— \$7 basic communication</li> <li>— \$7 communication</li> <li>— \$7 communication, as client</li> <li>— \$7 communication, as server</li> <li>— Equidistance</li> <li>— Isochronous mode</li> <li>— \$YNC/FREEZE</li> <li>— Activation/deactivation of DP slaves</li> <li>— Number of DP slaves that can be simultaneously activated/deactivated, max.</li> </ul>	Yes Yes Yes Yes Yes No; but via CP and loadable FB Yes  12 Mbit/s 124  Yes Yes No Yes; I blocks only Yes No Yes 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	
<ul> <li>Transmission rate, max.</li> </ul>	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
<ul> <li>S7 basic communication</li> </ul>	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	200 IIIA
• MPI	No
PROFINET IO Controller	
PROFINET TO Controller      PROFINET TO Device	No No
	No No
PROFINIT 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	
<ul> <li>Transmission rate, max.</li> </ul>	12 Mbit/s
Number of DP slaves, max.	124
Services	
— PG/OP communication	Yes
— Routing	Yes
<ul> <li>Global data communication</li> </ul>	No
<ul> <li>S7 basic communication</li> </ul>	Yes; I blocks only
— S7 communication	Yes
<ul> <li>S7 communication, as client</li> </ul>	No
<ul> <li>S7 communication, as server</li> </ul>	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
<ul> <li>Activation/deactivation of DP slaves</li> </ul>	Yes
<ul> <li>Number of DP slaves that can be simultaneously activated/deactivated, max.</li> </ul>	8
Direct data exchange (slave-to-slave communication)	Yes; as subscriber
— 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	
GSD file	The latest GSD file is available at: http://www.siemens.com/profibus-gsd
<ul> <li>Transmission rate, max.</li> </ul>	12 Mbit/s
<ul> <li>automatic baud rate search</li> </ul>	Yes; only with passive interface
<ul> <li>Address area, max.</li> </ul>	32
User data per address area, max.	32 byte
Services	
— PG/OP communication	Yes
— Routing	Yes; with interface active
<ul> <li>Global data communication</li> </ul>	No
<ul> <li>S7 basic communication</li> </ul>	No
— S7 communication	Yes
<ul> <li>— S7 communication, as client</li> </ul>	No
<ul> <li>S7 communication, as server</li> </ul>	Yes; Connection configured on one side only
Direct data exchange (slave-to-slave communication)	Yes
communication)	No
— DPV1	No
Transfer memory	244 hyta
— Inputs — Outputs	244 byte 244 byte
	244 byte
3. Interface	PROFINET
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes; 10/100 Mbit/s
Autonegotiation	Yes
Autocrossing Change of ID address at susting guaranted	Yes
Change of IP address at runtime, supported Interface types	Yes
· · ·	Yes
<ul><li>RJ 45 (Ethernet)</li><li>Number of ports</li></ul>	2
integrated switch	Yes
Protocols	165
• 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 TO Device     PROFINET CBA	Yes, Also simultaneously with 10 Controller functionality  Yes
PROFIBUS DP master	
PROFIBUS DP master     PROFIBUS DP slave	No No
Open IE communication	Yes; Via TCP/IP, ISO on TCP, and UDP
Web server	Yes
Media redundancy	Yes
PROFINET IO Controller	160
Transmission rate, max.	100 Mbit/s
Services	TOO MIDIUS
— PG/OP communication	Yes
— Routing	Yes
Routing     S7 communication	Yes; with loadable FBs, max. configurable connections: 16, max. number of
— Isochronous mode	instances: 32  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	256

Bezoulty - of which is line, max In which is line, max of which is line, max of which is line, max Activation/described of O Devices for RT, max Activation/described of O Devices and an be simultaneously activated/deact/readed, max In Devices changing unduring operation (perher ports), supported - Number of ID Devices per tool, max Device replacement without swap medium - Send cycles - Updating lime - Send cycles - Send conditions - Send cycles - Updating lime - Send cycles - Send conditions - Send cycles - Send conditions - Send conditions - Send cycles - Send conditions - Send cycles - Send conditions - Send cycles - Send cycle	5 H.W. B	
- Number of connectable IO Devices for RT, max of which line, max of which line, max Nember of IO Devices a National desirudinareously activelectionscholared, max Nember of IO Devices braining during operation (partner ports), supported - Number of IO Devices braining during operation (partner ports), supported - Number of IO Devices per tool, max Device replacement without swap medium - Send cycles - Updating time - Send cycles - Updating time - Updating tim	flexibility"	
- of whitch in live, max - Activation/deachwaten of OD Devices - Number of 10 Devices that can be simultaneously advivated/febschoteker, max - IO Devices changing during operation (partner ports), spoported - Number of 10 Devices per tool, max - Device replacement without awap medium - Send cycles - Updating time - Send cycles - Send cycles - Updating time - Send cycles - Send cycles - Updating time - Send cycles - Sen	•	
Activation/disactivation of IO Deviolos Number of IO Deviolos at each set insultaneously activates (Medicivided, max IO Devices changing during operation (pariner ports), supported Number of IO Deviolos per folio, max Device replacement without swap medium Send cycles Updating time Send cycles Updating time Vigilia (Medicivity) V		
Number of ID Devices that can be simultaneously advisable/disclarization, max ID Devices changing during operation (partner ports), supported Number of ID Devices per tool, max Device replacement without swap medium Send cycles Device replacement without swap medium Send cycles Updating time Send cycles Updating time	•	
activated/deactiveder, max.		
Portis, supported  Number of 10 Devices per tool, max.  Device replacement without swap medium  Send cycles  Updating time  250 us, 500 us, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option.)  220 us 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.  Outputs, max.  User data consistency, max.  1 1024 byte  PROFIBERT IX Device  Services  PROFIDERT IX Device  Profice IX Device  Profice IX Device  PROFIDERT IX Device IX Dev	activated/deactivated, max.	
- Device replacement without swap medium - Send cycles - Send cycles - Send cycles - Send cycles - Updating time - 260 µs 50 µs.1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" cyclon) - Start Send Send Send Send Send Send Send Send		Yes
Send cycles Updaling time Updaling time 250 us 517 us (depending on the operating mode, see Manual "S7-300 CPU 31% and CPU 31% interchical Data" for more details)  Address area Inputs, max Updusts, max	<ul> <li>Number of IO Devices per tool, max.</li> </ul>	8
- 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	<ul> <li>Device replacement without swap medium</li> </ul>	
Address area	— Send cycles	
- Inputs, max.	— Updating time	
Outputs, max User data consistency, max. 1 024 byte  PROFINET ID Device  Services	Address area	
PROFINET IO Device  Services  - PG/OP communication Yes - Routing Yes, with loadable FBs, max. configurable connections: 16, max. number of instances: 32 - Isochronous mode No - IRT Yes - PROFlenergy Yes, with Isodable 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, max.  Transfer memory - Inputs, max Using routiness of the standard of the standard file of	— Inputs, max.	8 kbyte
PROFINET IO Device  Services  — PG/OP communication — Routing — S7 communication — Syes, with loadable FBs, max. configurable connections: 18, max. number of instances: 32 — Isochronous mode — IRT — Yes — PROFlenergy — Shared device — Shared device — Shared device — Number of IO Controllers with shared device, max.  Transfer memory — Inputs, max. — Outputs, max. — Outputs, max. — Outputs, max. — Outputs, max. — H40 byte; Per IO Controller with shared device — Number of IO Controllers with shared device — Number, max. — Use data per submodule, max.  PROFINET CBA  • acyclic transmission • Ves • cyclic transmission • Number of connections, max. • Local port numbers used at the system end • Number of connections, max. • Local port numbers used at the system end • Redundancy — Switchover time on line break, typ. — Number of stations in the ring, max.  Open IE communication • Number of connections, max. • Keep-alive function, supported  PROFISE  PRO	— Outputs, max.	8 kbyte
Services  - PG/OP communication - Routing - S7 communication - Routing - S7 communication - S8 communication - IRT - PROFlemengy - S8 (With SFB 73 / 74 prepared for loadable PROFlemengy standard FB for 1-Davice - PROFlemengy - Shared device - Number of ID Controllers with shared device, max Stands emenory - Inputs, max Outputs, max Outputs, max Outputs, max User data per submodule, max Sa communication - Ves	— User data consistency, max.	1 024 byte
PGIOP communication Routing Stroommunication Stroommunication Stroommunication Stroommunication Stroommunication Stroommunication Stroommunication Stroommunication IRT PROFlenergy Stroommunication Stroomm	PROFINET IO Device	
Routing 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, With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device  - Shared device, max.  Shared device, max.  Inputs, max.  Inputs	Services	
	— PG/OP communication	Yes
Instances: 32  Isochronous mode  IRT  PROFlenergy  PROFlenergy  Shared device  Shared device  Number of connections, max.  Local port numbers used at the system end  Keep-alive function, supported  Namber of stations in the ring, max.  Keep-alive function, supported  PROFlisafe  Redundancy  Switchover time on line break, typ.  Number of connections, max.  Nember of connections, max.  Nember of stations in the ring, max.  Nember of connections, max.  Nember of stations in the ring, max.  Nember of connections, max.  Nember of stations in the ring, max.  Nember of connections, max.  Nember of stations in the ring, max.  Nember of connections, max.  Nember of stations in the ring, max.  Nember of connections, max.  Nember of stations in the ring, max.  Nember of connections, max.  Nember of stations in the ring, max.  Nember of stations in the ring, max.  Nember of connections, max.  Nember of connections	— Routing	Yes
- IRT - PRCFlenergy - Yes, With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device - Shared device - Shared device - Number of IO Controllers with shared device, max. 2 Transfer memory - Inputs, max Outputs, max Outputs, max Number, max User data per submodule, max Ves - acyclic transmission - ves - ovgilic transmission - ves - ovgilic transmission - Number of connections, max Local port numbers used at the system end - Number of connection, supported - Number of connections, max Standardy mode - Switchover time on line break, typ Number of connections, max Data length for connection type 01H, max Data length for connection, max Data length for connection, max Data length for connection, max Data length, max.	— S7 communication	
PROFlenergy PROFlenergy PROFlenergy Pres; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Pres Number of IO Controllers with shared device, max.  Transfer memory Inputs, max. Outputs, max. 1 440 byte; Per IO Controller with shared device Outputs, max. 1 440 byte; Per IO Controller with shared device  Number, max. 1 440 byte; Per IO Controller with shared device  Number, max. 1 440 byte; Per IO Controller with shared device  Number of canal standard FB for I PROFINET CBA  a cyclic transmission Yes Open IE communication Number of connections, max. 1 22 PROFISATE Number of stations in the ring, max. Deata length for connection type 01H, max. 1 460 byte Data length for connection, max. 2 2 3 768 byte Protocols Number of connections, max. 2 3 768 byte PROFINET interface and loadable FBs Number of connections, max. 2 2 768 byte Profixation Interface and loadable FBs Number of connections, max. 2 2 768 byte Profixation Interface and loadable FBs Number of connections, max. 2 2 768 byte Profixation Interface and loadable FBs Number of connections, max. 2 2 768 byte Profixations Interface and loadable FBs Number of connections, max. 2 2 768 byte Profixations Interface and loadable FBs Number of connections, max. 2 2 768 byte Profixations Interface and loadable FBs Number of connections, max. 2 2 768 byte Profixations Interface and loadable FBs Number of connections, max. 2 2 768 byte Profixations Interface and loadable FBs Number of connections, max. 3 2 768 byte Profixations Interface and loadable FBs Number of connections, max. 3 2 768 byte Profixations Interface and loadable FBs Number of connections, max. 3 2 768 byte Profixations Interface and loadable FBs Number of connections, max. 3 2 768 byte Profixations Interface and loadable FBs Number of connections, max. 3 2 768 byte	— Isochronous mode	
Device  - Shared device - Number of IO Controllers with shared device, max.  Transfer memory - Inputs, max Uptynts, max User data per submodule, max.  PROFINET CBA  a cyclic transmission • Ocyple transmission • Number of connections, max Local port numbers used at the system end PROFISER  Redundancy - Switchover time on line break, typ Number of stations in the ring, max.  Deat length for connections, max User dations in the ring, max.  920 ms; PROFINET MRP - Number of connections, max Siscon-TCP (RFC1006) - Number of connection type 01H, max Data length, max Data length, max Data length, max Data length, max Number of connections, max Data length, max.	— IRT	Yes
Transfer memory  Inputs, max.  Outputs, max.  I 1440 byte; Per IO Controller with shared device  Outputs, max.  I 1440 byte; Per IO Controller with shared device  Submodules  Number, max.  User data per submodule, max.  Ves  cyclic transmission  ocyclic transmission  Number of connections, max.  Local port numbers used at the system end  Exceptable  Exceptable  PROFINET GBA  * acyclic transmission  * Number of connections, max.  * Local port numbers used at the system end  Exceptable  * Keep-alive function, supported  Protocols  PROFIsafe  Redundancy mode  Media redundancy  — Switchover time on line break, typ. — Number of stations in the ring, max.  Doen IE communication  * ToP/IP  Number of connections, max.  Data length for connection type 01H, max.  Data length for connection type 11H, max.  * SoO-on-TCP (RFC1006)  — Number of connections, max.  Data length, max.  Data length, max.  * UDP  Number of connections, max.  32  Data length, max.  * UDP  Number of connections, max.  32  Data length, max.  1440 byte  1440 byte; Per IO Controller with shared device  4440 byte; Per IO Controller with shared device  644  455  465  46  472  48  49  49  49  49  49  49  49  49  49	— PROFlenergy	
Transfer memory  — Inputs, max. — Outputs, max. — Outputs, max. — 1 440 byte; Per IO Controller with shared device  — Number, max. — User data per submodule, max. — User data per submodule, max. — User data per submodule, max. — 1 024 byte  PROFINET CBA — a cyclic transmission — e cyclic transmission — ves — occupie transmission — Number of connections, max. — 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 — Switchover time on line break, typ. — Number of stations in the ring, max.  Open IE communication  • TCP/IP — Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. — Sound length, max. — Data length, max. — Data length, max. — UDP — Number of connections, max. — Data length, max. — UDP — Number of connections, max. — Data length, max. — Ves; via integrated PROFINET interface and loadable FBs — Number of connections, max. — Data length, max. — 232 — Data length, max. — 242 byte — Number of connections, max. — UDP — Number of connections, max. — Data length, max. — UDP — Number of connections, max. — Data length, max. — UDP — Number of connections, max. — Data length, max. — UDP — Number of connections, max. — Data length, max. — Data length, max. — 1 472 byte	— Shared device	Yes
- Inputs, max Outputs, max User data per submodule, max User data per submodule, max User data per submodule, max Oyelic transmission - o cyclic transmission - o cyclic transmission - o cyclic transmission - Number of connections, max Uocal port numbers used at the system end - Number of connections, max Uocal port numbers used at the system end - Oyen IE communication - Number of connections, max Uocal port numbers used at the system end - Oyen IE communication - Number of connections, supported - Yes - Number of stations in the ring, max Oyen IE communication - TCP/IP - Number of stations in the ring, max Other IE communication - TCP/IP - Number of connections, max Data length for connection type 01H, max Data length for connection type 11H, max Data length for connections, max Data length, max Other lections of connections, max Data length, max Other lections of connections, max Data length, max Output length, leng	<ul> <li>Number of IO Controllers with shared device, max.</li> </ul>	2
- Outputs, max.  Submodules - Number, max User data per submodule, max.  PROFINET CBA  • acyclic transmission • (yes) • (yelic transmission  • Number of connections, max. • Local port numbers used at the system end • (xee)-alive function, supported  PROFISE  Redundancy mode  Media redundancy - Switchover time on line break, typ Number of stations in the ring, max.  • (Copen IE communication • (xee)-alive function, supported  PROFISE  PROFISE  Redundancy mode  Media redundancy - Switchover time on line break, typ Number of stations in the ring, max.  Open IE communication • (TCP/IP)  • (TCP/IP)  - Number of connections, max Data length for connection type 01H, max Data length for connection type 11H, max.  • (SO-on-TCP (RFC1006) - Number of connections, max Data length, max.  - Data length, max.  • (UDP) - Number of connections, max Data length, max.  - Data length, max.  - Data length, max.  - Number of connections, max Data length, max.  - Data length, max.	Transfer memory	
Submodules  - Number, max User data per submodule, max. 1 024 byte  PROFINET CBA  • acyclic transmission Yes  Open IE communication  • Number of connections, max. 32  • Local port numbers used at the system end 65533, 65534, 65535  • Keep-alive function, supported Yes  PROFIsafe Yes  Redundancy mode  Media redundancy  - Switchover time on line break, typ Number of stations in the ring, max. 50  Open IE communication  • TCP/IP  - Number of connections, max. 50  - Data length for connection type 01H, max. 32  - Data length for connection type 11H, max. 32  - Data length for connections, max. 32  - Data length, max. 32  - Number of connections, max. 32  - Data length, max. 32  - Data length, max. 32  - Number of connections, max. 32  - Data length, max. 32  - Data length, max. 32  - Number of connections, max. 32  - Data length, max. 32  - Number of connections, max. 32  - Data length, max. 32  - Number of connections, max. 32  - Data length, max. 32  - Number of connections, max. 32  - Data length, max. 32  - Number of connections, max. 32  - Number of connections, max. 32  - Data length, max. 32  - Number of connections, max. 32  - Data length, max. 32  - Number of connections, max. 32  - Data length, max. 32	— Inputs, max.	1 440 byte; Per IO Controller with shared device
Number, max User data per submodule, max 1 024 byte  PROFINET CBA  acyclic transmission Yes Open IE communication Number of connections, max 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 Protocols Protocols Protocols Protocols Switchover time on line break, typ Number of stations in the ring, max Switchover time on line break, typ Number of stations in the ring, max Data length for connections, max Data length for connection type 01H, max Data length for connection type 11H, max Data length, for connection type 11H, max Data length, max Number of connections, max Data length, max Number of connections, max Data length, max.	— Outputs, max.	1 440 byte; Per IO Controller with shared device
— User data per submodule, max.  PROFINET CBA  • acyclic transmission • cyclic transmission • cyclic transmission  • Number of connections, max. • Local port numbers used at the system end • Keep-alive function, supported  PROFISATE  Redundancy mode  Media redundancy  — Switchover time on line break, typ. — Number of stations in the ring, max.  Data length for connection type 01H, max. — Data length for connection type 11H, max.  • ISO-on-TCP (RFC1006) — Number of connections, max.  Data length, max.  UDP — Number of connections, max.  ■ Data length, max.  Data length, max.  Data length, max.  ■ Data length, max.	Submodules	
PROFINET CBA  • acyclic transmission • cyclic transmission • yes  Open IE communication  • Number of connections, max. • Local port numbers used at the system end • Keep-alive function, supported  PROFIsafe Redundancy mode  Media redundancy  — Switchover time on line break, typ. — Number of stations in the ring, max.  Open IE communication  • TCP/IP  — Number of connections, max. — Data length for connection type 11H, max.  • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max.  • UDP — Number of connections, max. — Data length, max.  • UDP — Number of connections, max. — Data length, max.  • UDP — Number of connections, max. — Data length, max.  • UDP — Number of connections, max. — Data length, max.  • UDP — Number of connections, max. — Data length, max.  • UDP — Number of connections, max. — Data length, max.  • UAP Yes; via integrated PROFINET interface and loadable FBs  • Ves; via integrated PROFINET interface and loadable FBs  • Ves; via integrated PROFINET interface and loadable FBs  • Ves; via integrated PROFINET interface and loadable FBs  • Ves; via integrated PROFINET interface and loadable FBs  • UDP — Number of connections, max.  • UDP — Number of connections, max.  — Data length, max.  • 1 472 byte	— Number, max.	64
<ul> <li>acyclic transmission</li> <li>cyclic transmission</li> <li>Pes</li> <li>Open IE communication</li> <li>Number of connections, max.</li> <li>Local port numbers used at the system end</li> <li>d. 20, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535</li> <li>Keep-alive function, supported</li> <li>Protocols</li> <li>PROFIsafe</li> <li>Redundancy mode</li> <li>Media redundancy</li> <li>Switchover time on line break, typ.</li> <li>Number of stations in the ring, max.</li> <li>Open IE communication</li> <li>TCP/IP</li> <li>Number of connections, max.</li> <li>Data length for connection type 01H, max.</li> <li>I 460 byte</li> <li>ISO-on-TCP (RFC1006)</li> <li>Number of connections, max.</li> <li>I 22 768 byte</li> <li>UDP</li> <li>Number of connections, max.</li> <li>22 768 byte</li> <li>UDP</li> <li>Number of connections, max.</li> <li>22 768 byte</li> <li>UDP</li> <li>Number of connections, max.</li> <li>24 276 byte</li> </ul>	— User data per submodule, max.	1 024 byte
<ul> <li>cyclic transmission</li> <li>Open IE communication</li> <li>Number of connections, max.</li> <li>Local port numbers used at the system end</li> <li>0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535</li> <li>Keep-alive function, supported</li> <li>Yes</li> <li>Protocols</li> <li>PROFIsafe</li> <li>Redundancy mode</li> <li>Media redundancy</li> <li>— Switchover time on line break, typ.</li> <li>— Number of stations in the ring, max.</li> <li>Open IE communication</li> <li>TCP/IP</li> <li>— Number of connections, max.</li> <li>— Data length for connection type 01H, max.</li> <li>— Data length for connection type 11H, max.</li> <li>ISO-on-TCP (RFC1006)</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>— Data length, max.</li> <li>— Data length, max.</li> <li>— Data length, max.</li> <li>— UDP</li> <li>— Number of connections, max.</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>— UDP</li> <li>— Number of connections, max.</li> <li>— UDP</li> <li>— Number of connections, max.</li> <li>— UDP</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>— UDP</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>— UDP</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>— Data length, max.</li> <li>— Data length, max.</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>— Data length</li></ul>	PROFINET CBA	
Open IE communication  Number of connections, max. Local port numbers used at the system end Copen IE communication  Number of connections, max. Local port numbers used at the system end Copen IE communication  Neep-alive function, supported  Protocols  PROFIsafe Protocols  PROFIsafe Protocover  Redundancy mode  Media redundancy Suitchover time on line break, typ. Number of stations in the ring, max.  Open IE communication  TCP/IP Yes; via integrated PROFINET interface and loadable FBs Number of connection type 01H, max. Data length for connection type 11H, max. Suitchover time on line break, typ. S	acyclic transmission	Yes
Number of connections, max.  Local port numbers used at the system end  Neep-alive function, supported  Protocols  PROFIsafe  Redundancy mode  Media redundancy  Switchover time on line break, typ.  Number of stations in the ring, max.  Data length for connections, max.  I SO-on-TCP (RFC1006)  Number of connections, max.  Data length, max.  UDP  Number of connections, max.  Data length, max.  Opata length, max.  Number of connections, max.  Data length, max.  Opata length, max.  Number of connections, max.  Data length, max.  A Data length, max.  Data length, max.  Opata length, max.  Number of connections, max.  Data length, max.  Opata length, max.  A Data length, max.  Opata length, max.  A Data length, max.  Data length, max.  A D	cyclic transmission	Yes
Local port numbers used at the system end	Open IE communication	
Keep-alive function, supported  Protocols  PROFIsafe  Redundancy mode  Media redundancy  — Switchover time on line break, typ. — Number of stations in the ring, max.  Open IE communication  • TCP/IP  — Number of connections, max. — Data length for connection type 01H, max. — Data length for connections, max.  • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max.  — Data length, max.  • UDP — Number of connections, max. — Data length, max.  • UDP — Number of connections, max. — Data length, max.  • UDP — Number of connections, max. — Data length, max.  • UDP — Number of connections, max. — Data length, max.  • UDP — Number of connections, max. — Data length, max.  1 472 byte	<ul> <li>Number of connections, max.</li> </ul>	32
PROFIsafe Redundancy mode  Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max.  Open IE communication  • TCP/IP  Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max.  • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max.  Data length, max.  Superior of connections type 11H, max.  22 768 byte  • UDP — Ves; via integrated PROFINET interface and loadable FBs  32 768 byte  • UDP — Ves; via integrated PROFINET interface and loadable FBs  32 768 byte  • UDP — Ves; via integrated PROFINET interface and loadable FBs — Number of connections, max. 32 768 byte  • UDP — Number of connections, max. 32 768 byte  • UDP — Number of connections, max. 32 768 byte	Local port numbers used at the system end	
PROFIsafe Redundancy mode  Media redundancy  — Switchover time on line break, typ. — Number of stations in the ring, max.  Open IE communication  • TCP/IP — Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max.  • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  — Data length, max.  • UDP — Number of connections, max. — Data length, max.  • UDP — Number of connections, max. — Data length, max.  32 — Data length, max.  34 — Data length, max.  35 — Data length, max.  36 — Data length, max.  37 — Data length, max.  38 — Data length, max.  39 — Data length, max.  10  10  10  10  10  10  10  10  10  1		Yes
Redundancy mode  Media redundancy  — Switchover time on line break, typ. — Number of stations in the ring, max.  Open IE communication  • TCP/IP  — Number of connections, max. — Data length for connection type 01H, max.  — ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max.  — Data length, max.  — UDDP — Number of connections, max. — UDDP — Number of connections, max. — Data length, max.  32 — Number of connections, max. 32 — Data length, max. 32 — Data length, max. 32 — Number of connections, max. 32 — Data length, max. 32 — Number of connections, max. 32 — Data length, max. 32 — Number of connections, max. 32 — Data length, max. 32 — Number of connections, max. 32 — Data length, max. 32 — Data length, max. 32 — Data length, max. 32	Protocols	
Media redundancy  — Switchover time on line break, typ. — Number of stations in the ring, max.  Open IE communication  • TCP/IP — Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max.  • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max.  • UDP — Number of connections, max. — Data length, max.  • UDP — Number of connections, max. — Data length, max.  1 472 byte		Yes
- Switchover time on line break, typ Number of stations in the ring, max.  Open IE communication  TCP/IP  Number of connections, max.  Data length for connection type 01H, max.  Iso-on-TCP (RFC1006)  Number of connections, max.  Data length, max.  Data length, max.  Data length, max.  Data length, max.  Substitute of connection type 11H, max.  Substitute of connections, max.  Substitute of	·	
<ul> <li>Number of stations in the ring, max.</li> <li>Open IE communication</li> <li>▼TCP/IP</li> <li>Number of connections, max.</li> <li>Data length for connection type 01H, max.</li> <li>Data length for connection type 11H, max.</li> <li>ISO-on-TCP (RFC1006)</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>Data length, max.</li> <li>Data length, max.</li> <li>1 472 byte</li> </ul>		
Open IE communication  TCP/IP  Yes; via integrated PROFINET interface and loadable FBs  Data length for connection type 01H, max.  Data length for connection type 11H, max.  I 460 byte  Data length for connection type 11H, max.  ISO-on-TCP (RFC1006)  Number of connections, max.  Data length, max.  UDP  Number of connections, max.  Data length, max.  Data length, max.  1 472 byte	<ul> <li>Switchover time on line break, typ.</li> </ul>	200 ms; PROFINET MRP
<ul> <li>TCP/IP  — Number of connections, max.  — Data length for connection type 01H, max.  — Data length for connection type 11H, max.  — Data length for connection type 11H, max.  32 768 byte  ISO-on-TCP (RFC1006)  — Number of connections, max.  — Data length, max.  32 768 byte  Yes; via integrated PROFINET interface and loadable FBs  32 768 byte  UDP  Yes; via integrated PROFINET interface and loadable FBs  32 768 byte  Ves; via integrated PROFINET interface and loadable FBs  32 768 byte  1472 byte  1472 byte</li> </ul>		50
<ul> <li>Number of connections, max.</li> <li>Data length for connection type 01H, max.</li> <li>Data length for connection type 11H, max.</li> <li>ISO-on-TCP (RFC1006)</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>Data length, max.</li> <li>Data length, max.</li> <li>1 472 byte</li> </ul>	·	
<ul> <li>Data length for connection type 01H, max.</li> <li>Data length for connection type 11H, max.</li> <li>ISO-on-TCP (RFC1006)</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>UDP</li> <li>Yes; via integrated PROFINET interface and loadable FBs</li> <li>Yes; via integrated PROFINET interface and loadable FBs</li> <li>1 472 byte</li> </ul>	• TCP/IP	
<ul> <li>Data length for connection type 11H, max.</li> <li>ISO-on-TCP (RFC1006)</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>UDP</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>1 472 byte</li> </ul>		32
<ul> <li>ISO-on-TCP (RFC1006)</li> <li>Yes; via integrated PROFINET interface and loadable FBs</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>UDP</li> <li>Yes; via integrated PROFINET interface and loadable FBs</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>1 472 byte</li> </ul>	-	1 460 byte
<ul> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>■ UDP</li> <li>— Number of connections, max.</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>1 472 byte</li> </ul>	-	32 768 byte
<ul> <li>— Data length, max.</li> <li>■ UDP</li> <li>— Number of connections, max.</li> <li>— Data length, max.</li> <li>32 768 byte</li> <li>Yes; via integrated PROFINET interface and loadable FBs</li> <li>32</li> <li>— Data length, max.</li> <li>1 472 byte</li> </ul>	• ISO-on-TCP (RFC1006)	Yes; via integrated PROFINET interface and loadable FBs
<ul> <li>UDP</li> <li>Yes; via integrated PROFINET interface and loadable FBs</li> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>1 472 byte</li> </ul>	<ul> <li>Number of connections, max.</li> </ul>	32
<ul> <li>Number of connections, max.</li> <li>Data length, max.</li> <li>1 472 byte</li> </ul>	— Data length, max.	32 768 byte
— Data length, max. 1 472 byte	• UDP	Yes; via integrated PROFINET interface and loadable FBs
	<ul> <li>Number of connections, max.</li> </ul>	32
Web server	— Data length, max.	1 472 byte
	Web server	

<ul> <li>supported</li> <li>User-defined websites</li> <li>Number of HTTP dients</li> </ul>	
Number of HTTP clients     5	
communication functions / header	
PG/OP communication Yes	
Data record routing Yes	
Global data communication	
• supported Yes	
Number of GD loops, max.  8	
Number of GD packets, max.	
Number of GD packets, transmitter, max.	
Number of GD packets, receiver, max.	
• 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	
<ul> <li>User data per job (of which consistent), max.</li> <li>76 byte; 76 bytes (with X_SENI as server)</li> </ul>	D or X_RCV); 64 bytes (with X_PUT or X_GET
S7 communication	
• supported Yes	
• as server Yes	
	interface and loadable FB or via CP and
loadable FB	
<ul> <li>User data per job, max.</li> <li>See online help of STEP 7 (sha SFCs/FCs of S7 Communication</li> </ul>	ared parameters of the SFBs/FBs and of the on)
S5 compatible communication	
• supported Yes; via CP and loadable FC	
communication functions / PROFINET CBA (with set target communication load) / header	
• Setpoint for the CPU communication load 20 %	
<ul> <li>number of remote connection partners / with PROFINET</li> <li>CBA</li> </ul>	
<ul> <li>number of technological functions / with PROFINET CBA</li> <li>/ for master or slave</li> </ul>	
number of connections / with PROFINET CBA / for master or slave / total	
data volume / of the input variables / with PROFINET     CBA / for master or slave  24 000 byte	
data volume / of the output variables / with PROFINET  CBA / for master or slave  24 000 byte	
<ul> <li>number of internal and PROFIBUS interconnections / with PROFINET CBA / maximum</li> </ul>	
data volume / of internal and PROFIBUS interconnections / with PROFINET CBA / for master or slave      data volume / of internal and PROFINET CBA / for master or slave      data volume / of internal and PROFINET CBA / for master or slave      data volume / of internal and PROFINET CBA / for master or slave      data volume / of internal and PROFINET CBA / for master or slave      data volume / of internal and PROFINET CBA / for master or slave      data volume / of internal and PROFINET CBA / for master or slave      data volume / of internal and PROFINET CBA / for master or slave      data volume / of internal and PROFINET CBA / for master or slave      data volume / of internal and PROFINET CBA / for master or slave      data volume / of internal and PROFINET CBA / for master or slave      data volume / of internal and PROFINET CBA / for master or slave      data volume / of internal and PROFINET CBA / for master or slave      data volume / of internal and PROFINET CBA / for master or slave      data volume / of internal and PROFINET CBA / of internal and PROFIN	
data volume / with PROFINET CBA / per connection / maximum     1 400 byte	
performance data / PROFINET CBA / remote interconnection / with acyclic transfer / header	
<ul> <li>update time / of the remote interconnections / in the case of acyclic transmission / with PROFINET CBA</li> </ul>	
— number of remote connections to input variables / in the case of acyclic transmission / with PROFINET CBA / maximum  100	
— number of remote connections to output variables / in the case of acyclic transmission / with PROFINET CBA / maximum  100	
— data volume / as user data for remote interconnections with input variables / in the case of acyclic transmission / with PROFINET CBA	
— data volume / as user data for remote interconnections with output variables / in the case of acyclic transmission / with PROFINET CBA	
— data volume / as user data for remote interconnections / in the case of acyclic transmission / with PROFINET CBA / per connection / maximum	
performance data / PROFINET CBA / remote interconnection / with cyclic transfer / header	
— update time / of the remote interconnections / with cyclical transfer / with PROFINET CBA	
— number of remote connections to input variables / 300	

with PROFINET CBA / with cyclic transfer / maximum	
<ul> <li>number of remote connections to output variables / with cyclical transfer / with PROFINET CBA / maximum</li> </ul>	300
<ul> <li>— data volume / as user data for remote interconnections with input variables / with cyclical transfer / with PROFINET CBA / maximum</li> </ul>	4 800 byte
<ul> <li>— data volume / as user data for remote interconnections with output variables / with cyclical transfer / with PROFINET CBA / maximum</li> </ul>	4 800 byte
<ul> <li>— data volume / as user data for remote interconnections / with cyclical transfer / with PROFINET CBA / per connection / maximum</li> </ul>	450 byte
performance data / PROFINET CBA / HMI variables via PROF	INET / acyclic / header
<ul> <li>number of connectable HMI stations / for HMI variables / in the case of acyclic transmission / with PROFINET CBA</li> </ul>	3; 2x PN OPC/1x iMap
<ul> <li>update time / of the HMI variables / in the case of acyclic transmission / with PROFINET CBA</li> </ul>	500 ms
<ul> <li>number of HMI variables / in the case of acyclic transmission / with PROFINET CBA / maximum</li> </ul>	600
<ul> <li>data volume / as user data for HMI variables / in the case of acyclic transmission / with PROFINET CBA / maximum</li> </ul>	9 600 byte
performance data / PROFINET CBA / PROFIBUS proxy function	onality / header
<ul> <li>product function / with PROFINET CBA / PROFIBUS proxy functionality</li> </ul>	Yes
<ul> <li>number of coupled PROFIBUS devices / with PROFIBUS functionality</li> </ul>	32
<ul> <li>— data volume / with PROFIBUS proxy functionality / with PROFINET CBA / per connection / maximum</li> </ul>	240 byte; Slave-dependent
Number of connections	
• overall	32
<ul> <li>usable for PG communication</li> </ul>	31
<ul> <li>reserved for PG communication</li> </ul>	1
<ul> <li>adjustable for PG communication, min.</li> </ul>	1
<ul> <li>adjustable for PG communication, max.</li> </ul>	31
usable for OP communication	31
<ul> <li>reserved for OP communication</li> </ul>	1
<ul> <li>adjustable for OP communication, min.</li> </ul>	1
— adjustable for OP communication, max.	31
<ul> <li>usable for S7 basic communication</li> </ul>	30
<ul> <li>reserved for S7 basic communication</li> </ul>	0
<ul> <li>adjustable for S7 basic communication, min.</li> </ul>	0
<ul> <li>adjustable for S7 basic communication, max.</li> </ul>	30
usable for S7 communication	16
<ul> <li>reserved for S7 communication</li> </ul>	0
— adjustable for S7 communication, min.	0
<ul> <li>adjustable for S7 communication, max.</li> </ul>	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
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
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 / header	
Configuration software	
• STEP 7	Yes; V5.5 or higher
configuration / programming / header	
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	
<ul> <li>User program protection/password protection</li> </ul>	Yes
Block encryption	Yes; With S7 block Privacy
Dimensions	
Width	120 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	

last modified:

4/1/2022