6ES7317-2EK14-0AB0

## **Data sheet**



SIMATIC S7-300 CPU 317-2 PN/DP, Central processing unit with 1 MB 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
Product function	
<ul> <li>Isochronous mode</li> </ul>	Yes; Via PROFIBUS DP or PROFINET interface
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V5.5 or higher
Supply voltage	
Rated value (DC)	24 V
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	
<ul> <li>Mains/voltage failure stored energy time</li> </ul>	5 ms
<ul> <li>Repeat rate, min.</li> </ul>	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 <sup>2</sup> ·s
Power loss	
Power loss, typ.	4.65 W
Memory	
Work memory	
violitimonory	
• integrated	1 024 kbyte
•	1 024 kbyte No
<ul><li>integrated</li><li>expandable</li><li>Load memory</li></ul>	
<ul><li>integrated</li><li>expandable</li></ul>	No Yes
<ul> <li>integrated</li> <li>expandable</li> <li>Load memory</li> <li>Plug-in (MMC)</li> <li>Plug-in (MMC), max.</li> </ul>	No
<ul> <li>integrated</li> <li>expandable</li> <li>Load memory</li> <li>Plug-in (MMC)</li> <li>Plug-in (MMC), max.</li> <li>Data management on MMC (after last</li> </ul>	No Yes
<ul> <li>integrated</li> <li>expandable</li> <li>Load memory</li> <li>Plug-in (MMC)</li> <li>Plug-in (MMC), max.</li> <li>Data management on MMC (after last programming), min.</li> </ul>	Yes 8 Mbyte
<ul> <li>integrated</li> <li>expandable</li> <li>Load memory</li> <li>Plug-in (MMC)</li> <li>Plug-in (MMC), max.</li> <li>Data management on MMC (after last programming), min.</li> <li>Backup</li> </ul>	Yes 8 Mbyte 10 a
<ul> <li>integrated</li> <li>expandable</li> <li>Load memory</li> <li>Plug-in (MMC)</li> <li>Plug-in (MMC), max.</li> <li>Data management on MMC (after last programming), min.</li> <li>Backup</li> <li>present</li> </ul>	Yes 8 Mbyte 10 a  Yes; Guaranteed by MMC (maintenance-free)
<ul> <li>integrated</li> <li>expandable</li> <li>Load memory</li> <li>Plug-in (MMC)</li> <li>Plug-in (MMC), max.</li> <li>Data management on MMC (after last programming), min.</li> <li>Backup</li> <li>present</li> <li>without battery</li> </ul>	Yes 8 Mbyte 10 a
<ul> <li>integrated</li> <li>expandable</li> <li>Load memory</li> <li>Plug-in (MMC)</li> <li>Plug-in (MMC), max.</li> <li>Data management on MMC (after last programming), min.</li> <li>Backup</li> <li>present</li> <li>without battery</li> </ul> CPU processing times	Yes 8 Mbyte 10 a  Yes; Guaranteed by MMC (maintenance-free) Yes; Program and data
<ul> <li>integrated</li> <li>expandable</li> <li>Load memory</li> <li>Plug-in (MMC)</li> <li>Plug-in (MMC), max.</li> <li>Data management on MMC (after last programming), min.</li> <li>Backup</li> <li>present</li> <li>without battery</li> </ul> CPU processing times for bit operations, typ.	Yes 8 Mbyte 10 a  Yes; Guaranteed by MMC (maintenance-free) Yes; Program and data
<ul> <li>integrated</li> <li>expandable</li> <li>Load memory</li> <li>Plug-in (MMC)</li> <li>Plug-in (MMC), max.</li> <li>Data management on MMC (after last programming), min.</li> <li>Backup</li> <li>present</li> <li>without battery</li> <li>CPU processing times</li> <li>for bit operations, typ.</li> <li>for word operations, typ.</li> </ul>	Yes 8 Mbyte 10 a  Yes; Guaranteed by MMC (maintenance-free) Yes; Program and data  0.025 µs 0.03 µs
integrated expandable  Load memory Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min.  Backup present without battery  CPU processing times  for bit operations, typ. for word operations, typ. for fixed point arithmetic, typ.	Yes 8 Mbyte 10 a  Yes; Guaranteed by MMC (maintenance-free) Yes; Program and data  0.025 µs 0.03 µs 0.04 µs
<ul> <li>integrated</li> <li>expandable</li> <li>Load memory</li> <li>Plug-in (MMC)</li> <li>Plug-in (MMC), max.</li> <li>Data management on MMC (after last programming), min.</li> <li>Backup</li> <li>present</li> <li>without battery</li> <li>CPU processing times</li> <li>for bit operations, typ.</li> <li>for word operations, typ.</li> </ul>	Yes 8 Mbyte 10 a  Yes; Guaranteed by MMC (maintenance-free) Yes; Program and data  0.025 µs 0.03 µs

Number of blocks (total)	2 048; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	
Number, max.	2 048; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
<ul><li>Number, max.</li></ul>	2 048; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
Number, max.	2 048; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
• Size, max.	64 kbyte
Number of free cycle OBs	1; OB 1
Number of time alarm OBs	1; OB 10
Number of delay alarm OBs	2; OB 20, 21
Number of cyclic interrupt OBs	4; OB 32, 33, 34, 35
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 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously)
Number of startup OBs     Number of seventhronous error OBs	1; OB 100 6: OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO)
<ul><li>Number of asynchronous error OBs</li><li>Number of synchronous error OBs</li></ul>	6; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO) 2; OB 121, 122
Nesting depth	2, 00 121, 122
per priority class	16
additional within an error OB	4
Counters, timers and their retentivity	•
S7 counter	F40
Number  Potentinity	512
Retentivity	Vee
— adjustable	Yes 0
— lower limit	511
— upper limit	
— preset	Z 0 to Z 7
Counting range	Yes
— adjustable — lower limit	0
	999
— upper limit IEC counter	999
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
S7 times	Offill little dolly by TANI capacity)
Number	512
Retentivity	J.E
— adjustable	Yes
— lower limit	0
— upper limit	511
— preset	No retentivity
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max. Flag	256 kbyte
• Size, max.	4 096 byte
Retentivity available	Yes; From MB 0 to MB 4 095
Retentivity available     Retentivity preset	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
- Hamber of Glock Highlights	o, i momory byto

Data blocks	
Retentivity adjustable	Yes; via non-retain property on DB
Retentivity adjustable     Retentivity preset	Yes
Local data	100
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	0 102 0,10
— 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
Inputs, default	256 byte
Outputs, default	256 byte
Subprocess images	
<ul> <li>Number of subprocess images, max.</li> </ul>	1; With PROFINET IO, the length of the user data is limited to 1600 bytes
Digital channels	
• Inputs	65 536
— of which central	1 024
Outputs     of which control	65 536
— of which central  Analog channels	1 024
Inputs	4 096
— of which central	256
Outputs	4 096
— of which central	256
Hardware configuration	
Number of expansion units, max.	3
Number of DP masters	
integrated	1
• via CP	4
Number of operable FMs and CPs (recommended)	
Number of operable rivis and CF's (recommended)	
• FM	8
● FM ● CP, PtP	8
<ul><li>FM</li><li>CP, PtP</li><li>CP, LAN</li></ul>	
FM CP, PtP CP, LAN Rack	8 10
FM CP, PtP CP, LAN Rack Racks, max.	8 10 4
<ul> <li>FM</li> <li>CP, PtP</li> <li>CP, LAN</li> <li>Rack</li> <li>Racks, max.</li> <li>Modules per rack, max.</li> </ul>	8 10
FM CP, PtP CP, LAN Rack Racks, max.	8 10 4
<ul> <li>FM</li> <li>CP, PtP</li> <li>CP, LAN</li> <li>Rack</li> <li>Racks, max.</li> <li>Modules per rack, max.</li> </ul> Time of day Clock	8 10 4 8
FM CP, PtP CP, LAN  Rack Racks, max. Modules per rack, max.  Time of day  Clock Hardware clock (real-time)	8 10 4 8 Yes
FM CP, PtP CP, LAN  Rack Racks, max. Modules per rack, max.  Time of day  Clock Hardware clock (real-time) retentive and synchronizable	8 10 4 8 Yes Yes
FM CP, PtP CP, LAN  Rack Rack Racks, max. Modules per rack, max.  Time of day  Clock Hardware clock (real-time) retentive and synchronizable Backup time	8 10  4 8  Yes Yes Yes 6 wk; At 40 °C ambient temperature
FM CP, PtP CP, LAN  Rack Rack Racks, max. Modules per rack, max.  Time of day  Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max.	8 10  4 8  Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s
FM CP, PtP CP, LAN  Rack Rack Racks, max. Modules per rack, max.  Time of day  Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON	8 10  4 8  Yes Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF
FM CP, PtP CP, LAN  Rack Rack Racks, max. Modules per rack, max.  Time of day  Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup	8 10  4 8  Yes Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched
FM CP, PtP CP, LAN  Rack Racks, max. Modules per rack, max. Modules per rack, max.  Time of day  Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period	8 10  4 8  Yes Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF
FM CP, PtP CP, LAN  Rack Rack Racks, max. Modules per rack, max.  Time of day  Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup	8 10  4 8  Yes Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched
FM CP, PtP CP, LAN  Rack Racks, max. Modules per rack, max.  Modules per rack, max.  Time of day  Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period  Operating hours counter Number	Yes Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off
FM CP, PtP CP, LAN  Rack Racks, max. Modules per rack, max. Modules per rack, max.  Time of day  Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period  Operating hours counter Number Number/Number range	Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off  4 0 to 3
FM CP, PtP CP, LAN  Rack Rack Racks, max. Modules per rack, max.  Time of day  Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period  Operating hours counter  Number Number Range of values	Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off
FM CP, PtP CP, LAN  Rack Racks, max. Modules per rack, max. Modules per rack, max.  Time of day  Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period  Operating hours counter Number Number/Number range	Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off  4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 h
FM CP, PtP CP, LAN  Rack Rack Racks, max. Modules per rack, max.  Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period  Operating hours counter  Number Range of values Granularity	Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off  4 0 to 3 0 to 2^31 hours (when using SFC 101)
FM CP, PtP CP, LAN  Rack Rack Racks, max. Modules per rack, max.  Time of day  Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period  Operating hours counter  Number Range of values Granularity retentive	Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off  4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 h
FM CP, PtP CP, LAN  Rack Rack Racks, max. Modules per rack, max.  Ime of day  Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period  Operating hours counter  Number Number Range of values Granularity retentive  Clock synchronization	Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off  4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart
FM CP, PtP CP, LAN  Rack Rack Racks, max. Modules per rack, max.  Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period  Operating hours counter Number Number Range of values Granularity retentive  Clock synchronization supported	Yes Yes Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off  4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart  Yes

( DD )	V
• to DP, slave	Yes
• in AS, master	Yes
<ul><li>in AS, slave</li><li>on Ethernet via NTP</li></ul>	Yes
	Yes; As client
Digital inputs	0
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
Isolated	Yes
Interface types	
• RS 485	Yes
Output current of the interface, max.  Pretected.	200 mA
Protocols	Von
MPI     DESCRIPTION DE master	Yes Yes
<ul><li>PROFIBUS DP master</li><li>PROFIBUS DP slave</li></ul>	Yes
Point-to-point connection	No
MPI	INO
Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
<ul> <li>Global data communication</li> </ul>	Yes
<ul> <li>S7 basic communication</li> </ul>	Yes
— S7 communication	Yes
<ul> <li>S7 communication, as client</li> </ul>	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	Voo
— PG/OP communication	Yes Yes
<ul><li>— Routing</li><li>— Global data communication</li></ul>	Yes No
Global data communication      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
<ul> <li>Activation/deactivation of DP slaves</li> </ul>	Yes
Number of DP slaves that can be simultaneously activated/deactivated, may	8
simultaneously activated/deactivated, max.  — Direct data exchange (slave-to-slave	Yes; as subscriber
communication)	i co, do oupochipei
— DPV1	Yes
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP slave	

Inputs, max Outputs, max Outputs	
PROFIBUS DP slave  ● Transmission rate, max.  ● automatic baud rate search  Address area, max.  ■ User data per address area, max.  ■ PG/OP communication  — Routing  — Routing  — Global data communication  — S7 basic communication  — S7 communication  — S7 communication  — S7 communication, as client  — S7 communication, as server  — Direct data exchange (slave-to-slave communication)  — DPV1  Transfer memory  — Inputs — Outputs  244 byte  244 byte  21 Interface  Interface type  Interface type  Interface type  Interface detection of transmission rate  Autonogotiation  Autocrossing  Change of IP address at runtime, supported  Interface types  ● RJ 45 (Ethernet)  ● MPI  Protocols  ● MPI  No  Izansfer memory  12 Mbit/s  Yes; only with passive interface  Yes; only with passive interface  Yes; only with passive interface  Yes  Yes Connection configured on one side only  Yes Connection configured on one side only  Yes Connection configured on one side only  Yes  Yes Connection configured on one side only  Yes  Yes Yes Connection configured on one side only  Yes  Yes Connection configured on one side only  Yes  Yes Connection configured on one side only  Yes  Yes Connection configured on one side only  Yes  Yes Connection configured on one side only  Yes  Yes Connection configured on one side only  Yes  Yes Connection configured on one side only  Yes  Yes Connection configured on one side only  Yes  Yes Connection configured on one side only  Yes  Yes Connection configured on one side only  Yes  Yes Connection configured on one side only  Yes Connection configured on one side only  Yes  Yes Connection configured on one side only  Yes Connection configured configured confi	
<ul> <li>Transmission rate, max.</li> <li>automatic baud rate search</li> <li>Address area, max.</li> <li>User data per address area, max.</li> <li>Bervices</li> <li>— PG/OP communication</li> <li>— Routing</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 server</li> <li>— Direct data exchange (slave-to-slave communication)</li> <li>— DPV1</li> <li>Transfer memory</li> <li>— Inputs</li> <li>— Outputs</li> <li>244 byte</li> <li>244 byte</li> <li>244 byte</li> <li>244 byte</li> <li>245 losiated</li> <li>automatic detection of transmission rate</li> <li>Autocrossing</li> <li>Autocrossing</li> <li>Pas (Ethernet)</li> <li>Yes</li> <li>No</li> <li>Protocols</li> <li>• MPI</li> <li>Mo</li> </ul>	
<ul> <li>automatic baud rate search</li> <li>Address area, max.</li> <li>User data per address area, max.</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</li> <li>S7 communication, as client</li> <li>S7 communication, as server</li> <li>Direct data exchange (slave-to-slave communication)</li> <li>DPV1</li> <li>Transfer memory</li> <li>Inputs</li> <li>Outputs</li> <li>244 byte</li> <li>Outputs</li> <li>Interface</li> <li>Interface type</li> <li>Interface type</li> <li>Autonegotiation</li> <li>Yes</li> <li>PROFINET</li> <li>Isolated</li> <li>Autonegotiation</li> <li>Yes</li> <li>PROFINET</li> <li>Ves</li> <li>Interface types</li> <li>PROFINET</li> <li>Ves</li> <li>Autonegotiation</li> <li>Yes</li> <li>Change of IP address at runtime, supported</li> <li>Interface types</li> <li>RJ 45 (Ethernet)</li> <li>Nes</li> <li>Profocols</li> <li>MPI</li> <li>No</li> </ul>	
Address area, max.  User data per address area, max.  Services  - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1  Transfer memory - Inputs - Outputs  244 byte 244 byte  2. Interface  Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing - RJ 45 (Ethernet) - Number of ports - Interface type - Interpretated switch - Number of ports - RJ 45 (Ethernet) - Number of ports - Interpretated switch - Protocols - MPI  No  Yes - Outputs - Quiputs -	
User data per address area, max.  Services  - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 - DPV1 - No  Transfer memory - Inputs - Outputs  2. Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autorossing - Change of IP address at runtime, supported Interface types • RJ 45 (Ethernet) • No  Protocols • MPI  No  Yes  Ves Only with active interface Yes (Only with acti	
Services  - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 - No  Transfer memory - Inputs - Outputs  2. Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types  • RJ 45 (Ethernet) • No  Protocols • MPI  No  Yes  Only with active interface Yes (Only with active interface No Yes (Only with active interface Yes (Only with active interface No Yes (Only with active interface Yes (Only with active interface No No  Yes  PROFINET Yes  Yes (10/100 Mbit/s Yes  Yes  Interface types  • RJ 45 (Ethernet) • Yes  • integrated switch Yes  Protocols • MPI	
PG/OP communication Routing Routing Global data communication S7 basic communication S7 basic communication S7 communication S7 communication S7 communication, as client S7 communication, as server S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 DPV1 DPV1 No  Transfer memory Inputs Outputs Outputs Outputs  244 byte  2. Interface Interface type Isolated automatic detection of transmission rate Autoregotiation Yes  Ves  Ves  Ves  Ves  Ves  Interface type  Interface type    PROFINET     Yes   10/100 Mbit/s	
— Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 — No  Transfer memory — Inputs — Outputs  244 byte  2. Interface  Interface type Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported  ■ RJ 45 (Ethernet) ■ No  Protocols ● MPI  Protocols ● MPI  Protocols ■ No	
- Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 - No  Transfer memory - Inputs - Outputs 244 byte 2. Interface  Interface  Interface type Isolated automatic detection of transmission rate Autorogotiation Autocrossing - Change of IP address at runtime, supported - Number of ports - Number of ports - integrated switch - Yes - Number of ports - integrated switch - MPI  No  No  No  No  No  No  No  No  No  N	
- S7 basic communication - S7 communication - S7 communication, as client - S7 communication, as server - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 - DPV1 - No  Transfer memory - Inputs - Outputs  244 byte - Outputs  2. Interface  Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported  Interface types - RJ 45 (Ethernet) - Number of ports - Integrated switch - Yes - Integrated switch - 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 communication) - DPV1 No  Transfer memory - Inputs 244 byte - Outputs 244 byte  2. Interface  Interface type PROFINET Isolated automatic detection of transmission rate Yes; 10/100 Mbit/s Autonegotiation Yes Autocrossing Yes Change of IP address at runtime, supported Yes Interface types  • RJ 45 (Ethernet) Yes • Number of ports • integrated switch Yes  Protocols • MPI No	
- S7 communication, as client - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No  Transfer memory - Inputs - Outputs 244 byte - Outputs  2. Interface  Interface type Isolated automatic detection of transmission rate Autocrossing Change of IP address at runtime, supported Interface types Interface type  Interface type  Autocrossing Change of IP address at runtime, supported Interface type Interface type  Interface type  PROFINET Yes  10/100 Mbit/s  Yes  Change of IP address at runtime, supported Yes  Interface types  PRJ 45 (Ethernet) No  Yes  Integrated switch Yes  Protocols  MPI No	
- S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No  Transfer memory - Inputs - Outputs 244 byte 2. Interface Interface type Isolated automatic detection of transmission rate Autorogotiation Autocrossing Change of IP address at runtime, supported Interface types  • RJ 45 (Ethernet) • Number of ports • MPI  Protocols • MPI  Ves Connection configured on one side only Yes Connection configured on one side only Yes Change connection configured on one side only Yes No	
- Direct data exchange (slave-to-slave communication) - DPV1 No  Transfer memory - Inputs 244 byte - Outputs 244 byte  2. Interface  Interface type PROFINET solated Yes automatic detection of transmission rate Yes; 10/100 Mbit/s Autonegotiation Yes Autocrossing Yes Change of IP address at runtime, supported Yes Interface types  • RJ 45 (Ethernet) Yes • Number of ports 2 • integrated switch Yes  Protocols • MPI No	
communication)  — DPV1 No  Transfer memory  — Inputs — Outputs 244 byte  2. Interface  Interface type Isolated Yes automatic detection of transmission rate Yes; 10/100 Mbit/s Autoregotiation Yes Autocrossing Change of IP address at runtime, supported Yes Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols • MPI  No	
— DPV1 Transfer memory  — Inputs — Outputs  244 byte  244 byte  244 byte  2. Interface  Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types  ● RJ 45 (Ethernet) ● Number of ports ● integrated switch  PROFINET Yes  10/100 Mbit/s  Yes  10/100 Mbit/s  Yes  2  ■ Interface types  ● RJ 45 (Ethernet) ● Number of ports ● Number of ports  • Number of ports  • No	
Transfer memory  — Inputs — Outputs  244 byte  244 byte  2. Interface  Interface type Interface type Isolated Interface type Interface type Interface types  Interfac	
Inputs 244 byte 244 byte  2. Interface  Interface type PROFINET yes automatic detection of transmission rate Yes; 10/100 Mbit/s Autonegotiation Yes Autocrossing Yes Change of IP address at runtime, supported Yes  Interface types  RJ 45 (Ethernet) Yes Number of ports 2  integrated switch Yes  Protocols  MPI No	
- Outputs  2. Interface  Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported  Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  PROFINET Yes Yes; 10/100 Mbit/s Yes Yes  Ves  Yes  Yes  Yes   Ves  Interface types  • RJ 45 (Ethernet) • Number of ports  • integrated switch  Yes  Protocols • MPI  No	
Interface type Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Change of IP address at runtime, supported Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols • MPI  No	
Interface type Isolated Isolated Isolated Interface type  Automatic detection of transmission rate Yes; 10/100 Mbit/s Yes  Autonegotiation Yes  Autocrossing Yes Change of IP address at runtime, supported Yes  Interface types  Interface types  Interface types  Interface types Interface	
Isolated  automatic detection of transmission rate  Autonegotiation  Autocrossing  Change of IP address at runtime, supported  Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols • MPI  No	
automatic detection of transmission rate  Autonegotiation  Autocrossing  Change of IP address at runtime, supported  Interface types  RJ 45 (Ethernet)  Number of ports  integrated switch  Protocols  MPI  No	
Autorossing Yes Autocrossing Yes Change of IP address at runtime, supported Yes Interface types  • RJ 45 (Ethernet) Yes • Number of ports 2 • integrated switch Yes  Protocols • MPI No	
Autocrossing Change of IP address at runtime, supported Yes Interface types  RJ 45 (Ethernet) Number of ports Integrated switch Yes  Protocols MPI No	
Change of IP address at runtime, supported  Interface types  RJ 45 (Ethernet) Number of ports Integrated switch Yes  integrated switch Yes  Protocols MPI No	
Interface types  • RJ 45 (Ethernet)  • Number of ports  • integrated switch  Protocols  • MPI  No	
<ul> <li>RJ 45 (Ethernet)</li> <li>Number of ports</li> <li>integrated switch</li> <li>Protocols</li> <li>MPI</li> <li>No</li> </ul>	
<ul> <li>Number of ports</li> <li>integrated switch</li> <li>Protocols</li> <li>MPI</li> <li>No</li> </ul>	
<ul> <li>integrated switch</li> <li>Protocols</li> <li>MPI</li> <li>No</li> </ul>	
Protocols  • MPI  No	
• MPI No	
PROFINET IO Controller	
<ul> <li>PROFINET IO Controller</li> <li>Yes; Also simultaneously with IO-Device functionality</li> </ul>	
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	
Media redundancy     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: 16, max.	
number of instances: 32	
— Isochronous mode Yes; OB 61; isochronous mode can only be used alternatively on	
PROFIBUS DP or PROFINET IO	
— IRT Yes	
— Shared device Yes	
— Prioritized startup Yes	
<ul><li>Number of IO devices with prioritized startup,</li><li>32</li></ul>	
max.	
<ul><li>— Number of connectable IO Devices, max.</li><li>128</li></ul>	
— Of which IO devices with IRT, max.	
— of which in line, max.	
— Number of IO Devices with IRT and the option 128	
"high flexibility"	
— of which in line, max.	
— Number of connectable IO Devices for RT,	
max.	
— of which in line, max. 128	

<ul> <li>Activation/deactivation of IO Devices</li> </ul>	Yes
Number of IO Devices that can be aimultaneously settingted deagtiveted may.	8
simultaneously activated/deactivated, max.	V
<ul> <li>IO Devices changing during operation (partner ports), supported</li> </ul>	Yes
— Number of IO Devices per tool, max.	8
Device replacement without swap medium	Yes
Send cycles	250 μs, 500 μs,1 ms; 2 ms, 4 ms (not in the case of IRT with "high
— Seria Cycles	flexibility" option)
<ul> <li>Updating time</li> </ul>	250 µs to 512 ms (depending on the operating mode, see Manual "S7-
	300 CPU 31xC and CPU 31x, technical Data" for more details)
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
<ul><li>User data consistency, max.</li></ul>	1 024 byte
PROFINET IO Device	
Services	
<ul> <li>PG/OP communication</li> </ul>	Yes
— Routing	Yes
— S7 communication	Yes; with loadable FBs, max. configurable connections: 16, max.
	number of instances: 32
— Isochronous mode	No
— IRT	Yes
— PROFlenergy	Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB
— Shared device	for I-Device Yes
	2
<ul> <li>Number of IO Controllers with shared device, max.</li> </ul>	۷
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	Jis, i or io controller mar enaled device
— Number, max.	64
User data per submodule, max.	1 024 byte
ecc. acid poi oubilioudio. IIIda.	
PROFINET CBA	Yes
PROFINET CBA  • acyclic transmission  • cyclic transmission	Yes
PROFINET CBA  • acyclic transmission	Yes
PROFINET CBA  • acyclic transmission • cyclic transmission  Open IE communication • Number of connections, max.	Yes Yes
PROFINET CBA  • acyclic transmission  • cyclic transmission  Open IE communication	Yes Yes
PROFINET CBA  • acyclic transmission • cyclic transmission  Open IE communication • Number of connections, max.	Yes Yes 16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964,
PROFINET CBA  • acyclic transmission • cyclic transmission  Open IE communication • Number of connections, max. • Local port numbers used at the system end	Yes Yes 16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535
PROFINET CBA  • acyclic transmission • cyclic transmission  Open IE communication • Number of connections, max. • Local port numbers used at the system end • Keep-alive function, supported	Yes Yes 16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535
PROFINET CBA  • acyclic transmission • cyclic transmission  Open IE communication • Number of connections, max. • Local port numbers used at the system end • Keep-alive function, supported  Protocols	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes
PROFINET CBA  • acyclic transmission • cyclic transmission  Open IE communication • Number of connections, max. • Local port numbers used at the system end • Keep-alive function, supported  Protocols  PROFIsafe	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes
PROFINET CBA  • acyclic transmission • cyclic transmission  Open IE communication • Number of connections, max. • Local port numbers used at the system end • Keep-alive function, supported  Protocols  PROFIsafe Redundancy mode	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes
PROFINET CBA  • acyclic transmission • cyclic transmission  Open IE communication • Number of connections, max. • Local port numbers used at the system end • Keep-alive function, supported  Protocols  PROFIsafe  Redundancy mode  Media redundancy	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No
PROFINET CBA  • acyclic transmission • cyclic transmission Open IE communication • Number of connections, max. • Local port numbers used at the system end • Keep-alive function, supported  Protocols  PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ.	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP
PROFINET CBA  • acyclic transmission • cyclic transmission  Open IE communication • Number of connections, max. • Local port numbers used at the system end • Keep-alive function, supported  Protocols  PROFIsafe  Redundancy mode  Media redundancy  — Switchover time on line break, typ. — Number of stations in the ring, max.	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP
PROFINET CBA  • acyclic transmission • cyclic transmission  Open IE communication • Number of connections, max. • Local port numbers used at the system end • 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	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50
PROFINET CBA  • acyclic transmission • cyclic transmission  Open IE communication • Number of connections, max. • Local port numbers used at the system end  • 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	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50  Yes; via integrated PROFINET interface and loadable FBs
PROFINET CBA  • acyclic transmission • cyclic transmission  Open IE communication • Number of connections, max. • Local port numbers used at the system end  • 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.	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50  Yes; via integrated PROFINET interface and loadable FBs 16
PROFINET CBA  • acyclic transmission • cyclic transmission Open IE communication • Number of connections, max. • Local port numbers used at the system end • 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.	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50  Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte
PROFINET CBA  • acyclic transmission • cyclic transmission Open IE communication • Number of connections, max. • Local port numbers used at the system end • 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 connection type 11H, max.	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50  Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte
PROFINET CBA  • acyclic transmission • cyclic transmission Open IE communication • Number of connections, max. • Local port numbers used at the system end • 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 connection type 11H, max. — several passive connections per port,	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50  Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte
PROFINET CBA  • acyclic transmission • cyclic transmission Open IE communication • Number of connections, max. • Local port numbers used at the system end • 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 connection type 11H, max. — several passive connections per port, supported	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50  Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes
PROFINET CBA  • acyclic transmission • cyclic transmission Open IE communication • Number of connections, max. • Local port numbers used at the system end • 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 connection type 11H, max. — several passive connections per port, supported • ISO-on-TCP (RFC1006)	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50  Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes  Yes; via integrated PROFINET interface and loadable FBs
PROFINET CBA  • acyclic transmission • cyclic transmission Open IE communication • Number of connections, max. • Local port numbers used at the system end • 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 connection type 11H, max. — several passive connections per port, supported • ISO-on-TCP (RFC1006) — Number of connections, max.	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50  Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes  Yes; via integrated PROFINET interface and loadable FBs 16
PROFINET CBA  • acyclic transmission • cyclic transmission  Open IE communication • Number of connections, max. • Local port numbers used at the system end • 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 connection type 11H, max. — several passive connections per port, supported • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. — Data length, max.	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50  Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte
PROFINET CBA  • acyclic transmission • cyclic transmission  Open IE communication • Number of connections, max. • Local port numbers used at the system end  • 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 connection type 11H, max. — several passive connections per port, supported  • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max.  • UDP	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50  Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes  Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 17 18 19 19 10 10 11 11 12 13 15 16 16 17 18 18 18 19 18 19 18 19 18 19 18 19 18 19 18 19 18 19 18 19 18 19 18 19 18 19 18 19 18 19 18 19 18 19 18 19 18 19 18 18 18 18 18 18 18 18 18 18 18 18 18
PROFINET CBA  • acyclic transmission • cyclic transmission Open IE communication • Number of connections, max. • Local port numbers used at the system end • 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 connection type 11H, max. — several passive connections per port, supported • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. • UDP — Number of connections, max.	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50  Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16
PROFINET CBA  • acyclic transmission • cyclic transmission Open IE communication • Number of connections, max. • Local port numbers used at the system end • 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 connection type 11H, max. — several passive connections per port, supported • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. • UDP — Number of connections, max. — Data length, max.	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50  Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16
PROFINET CBA  • acyclic transmission • cyclic transmission Open IE communication • Number of connections, max. • Local port numbers used at the system end • 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 per port, supported • 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.  Web server	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50  Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes  Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 1472 byte
PROFINET CBA  acyclic transmission cyclic transmission Open IE communication Number of connections, max. Local port numbers used at the system end  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 connection type 11H, max. — several passive connections per port, supported ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max.  UDP — Number of connections, max. — Data length, max.  Web server  supported	Yes Yes  16 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 Yes  No  200 ms; PROFINET MRP 50  Yes; via integrated PROFINET interface and loadable FBs 16 1 460 byte 32 768 byte Yes  Yes; via integrated PROFINET interface and loadable FBs 16 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 16 1472 byte  Yes

communication functions / header	
PG/OP communication	Yes
Data record routing	Yes
Global data communication	
• supported	Yes
<ul> <li>Number of GD loops, max.</li> </ul>	8
<ul> <li>Number of GD packets, max.</li> </ul>	8
<ul> <li>Number of GD packets, transmitter, max.</li> </ul>	8
<ul> <li>Number of GD packets, receiver, max.</li> </ul>	8
<ul> <li>Size of GD packets, max.</li> </ul>	22 byte
Size of GD packet (of which consistent), max.	22 byte
S7 basic communication	V
• supported	Yes
<ul><li>User data per job, max.</li><li>User data per job (of which consistent), max.</li></ul>	76 byte 76 byte: 76 bytes (with X. SEND or X. BCV): 64 bytes (with X. BLIT or
• Oser data per job (or which consistent), max.	76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes; via integrated PROFINET interface and loadable FB or via CP and
e Lloor data pariah may	loadable FB
<ul> <li>User data per job, max.</li> </ul>	See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)
S5 compatible communication	and of control of communication,
• supported	Yes; via CP and loadable FC
communication functions / PROFINET CBA (with set target c	ommunication load) / header
Setpoint for the CPU communication load	50 %
<ul> <li>number of remote connection partners / with PROFINET CBA</li> </ul>	32
<ul> <li>number of technological functions / with PROFINET CBA / for master or slave</li> </ul>	30
<ul> <li>number of connections / with PROFINET CBA / for master or slave / total</li> </ul>	1 000
<ul> <li>data volume / of the input variables / with PROFINET CBA / for master or slave</li> </ul>	4 000 byte
data volume / of the output variables / with PROFINET CBA / for master or slave	4 000 byte
number of internal and PROFIBUS interconnections / with PROFINET CBA / maximum	500
<ul> <li>data volume / of internal and PROFIBUS interconnections / with PROFINET CBA / for master or slave</li> </ul>	4 000 byte
<ul> <li>data volume / with PROFINET CBA / per connection / maximum</li> </ul>	1 400 byte
performance data / PROFINET CBA / remote interconne	·
<ul> <li>update time / of the remote interconnections / in the case of acyclic transmission / with PROFINET CBA</li> </ul>	500 ms
<ul> <li>number of remote connections to input variables / in the case of acyclic transmission / with PROFINET CBA / maximum</li> </ul>	100
<ul> <li>number of remote connections to output variables / in the case of acyclic transmission / with PROFINET CBA / maximum</li> </ul>	100
<ul> <li>data volume / as user data for remote interconnections with input variables / in the case of acyclic transmission / with PROFINET CBA</li> </ul>	2 000 byte
<ul> <li>data volume / as user data for remote interconnections with output variables / in the case of acyclic transmission / with PROFINET CBA</li> </ul>	2 000 byte
— data volume / as user data for remote interconnections / in the case of acyclic transmission / with PROFINET CBA / per connection / maximum	1 400 byte
performance data / PROFINET CBA / remote interconne	
<ul> <li>update time / of the remote interconnections / with cyclical transfer / with PROFINET CBA</li> </ul>	10 ms
mumber of remote connections to input	200
— number of remote connections to input	200

variables / 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>	200
<ul> <li>data volume / as user data for remote interconnections with input variables / with cyclical transfer / with PROFINET CBA / maximum</li> </ul>	2 000 byte
<ul> <li>data volume / as user data for remote interconnections with output variables / with cyclical transfer / with PROFINET CBA / maximum</li> </ul>	2 000 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	PROFINET / 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>	200
<ul> <li>— data volume / as user data for HMI variables / in the case of acyclic transmission / with PROFINET CBA / maximum</li> </ul>	2 000 byte
performance data / PROFINET CBA / PROFIBUS proxy	functionality / header
— product function / with PROFINET CBA / PROFIBUS proxy functionality	Yes
<ul> <li>number of coupled PROFIBUS devices / with PROFIBUS functionality</li> </ul>	16
<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
usable for PG communication	31
reserved for PG communication	1
adjustable for PG communication, min.	1
adjustable for PG communication, max.	31
usable for OP communication	31
reserved for OP communication	1
adjustable for OP communication, min.	1
adjustable for OP communication, max.	31
usable for S7 basic communication	30
<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
<ul> <li>adjustable for S7 communication, min.</li> </ul>	0
<ul> <li>adjustable for S7 communication, max.</li> </ul>	16
<ul> <li>total number of instances, max.</li> </ul>	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.	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
<ul><li>Variables</li></ul>	Inputs, outputs, memory bits, DB, times, counters
<ul> <li>Number of variables, max.</li> </ul>	30

of which status variables, may	20
— of which status variables, max.	30 14
— of which control variables, max.  Forcing	14
• Forcing	Yes
Forcing     Forcing, variables	Inputs, outputs
<ul><li>Number of variables, max.</li></ul>	10
Diagnostic buffer	10
• present	Yes
Number of entries, max.	500
— adjustable	No
— of which powerfail-proof	100; Only the last 100 entries are retained
<ul> <li>Number of entries readable in RUN, max.</li> </ul>	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	, 55, 156 5g
Command set	see instruction list
Nesting levels	8
System functions (SFC)	see instruction list
<ul> <li>System function blocks (SFB)</li> </ul>	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
last modified:	4/1/2022 🖸