SIEMENS

Data sheet

6ES7315-2FJ14-0AB0



SIMATIC S7-300 CPU315F-2 PN/DP, Central processing unit with 512 KB work memory, 1st interface MPI/DP 12 Mbit/s, 2nd interface Ethernet PROFINET, with 2-port switch, Micro Memory Card required

General information	
Product type designation	CPU 315F-2 PN/DP
HW functional status	01
Firmware version	V3.2
Product function	
Isochronous mode	Yes; Via PROFIBUS DP or PROFINET interface
Engineering with	
 Programming package 	STEP 7 V5.5 or higher, Distributed Safety V5.4 SP4
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines (recommendation)	2 A min.
Mains buffering	
 Mains/voltage failure stored energy time 	5 ms
Repeat rate, min.	1 s
Input current	
Current consumption (rated value)	750 mA
Current consumption (in no-load operation), typ.	150 mA
Inrush current, typ.	4 A
l²t	1 A ² ·s
Power loss	
Power loss, typ.	4.65 W
Memory	
Work memory	
integrated	512 kbyte
• expandable	No
Load memory	
• Plug-in (MMC)	Yes
 Plug-in (MMC), max. 	8 Mbyte
 Data management on MMC (after last programming), min. 	10 a
Backup	
• present	Yes; Guaranteed by MMC (maintenance-free)
without battery	Yes; Program and data
CPU processing times	
for bit operations, typ.	0.05 µs
for word operations, typ.	0.09 µs
for fixed point arithmetic, typ.	0.12 µs

for floating point arithmatic typ	0.45.00
for floating point arithmetic, typ.	0.45 µs
CPU-blocks	
Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	
Number, max.	1 024; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	of hoyld
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
• Size, max.	64 kbyte
Number of free cycle OBs	1; OB 1
Number of time alarm OBs	1; OB 10
Number of delay alarm OBs	2; OB 20, 21
Number of cyclic interrupt OBs	4; OB 32, 33, 34, 35
Number of process alarm OBs	1; OB 40
Number of DPV1 alarm OBs	3; OB 55, 56, 57
Number of isochronous mode OBs	1; OB 61
Number of isocirionous mode OBs Number of startup OBs	1; OB 100
-	6; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO)
 Number of asynchronous error OBs Number of synchronous error OBs 	2; OB 121, 122
Nesting depth	2, OD 121, 122
per priority class	16
additional within an error OB	4
Counters, timers and their retentivity	4
S7 counter	256
Number	200
Retentivity	Vee
— adjustable	Yes
— preset	Z 0 to Z 7
Counting range	Vee
— adjustable — lower limit	Yes
	0
— upper limit IEC counter	999
	Vee
• present	Yes
• Type • Number	SFB
	Unlimited (limited only by RAM capacity)
S7 times	256
Number Detectivity	256
Retentivity	Van
— adjustable	Yes
— preset	No retentivity
Time range	10 ma
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	Va
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	128 kbyte
Flag	
• Size, max.	2 048 byte
Retentivity available	Yes; MB 0 to MB 2 047
Retentivity preset	MB 0 to MB 15
 Number of clock memories 	8; 1 memory byte

Data blocks	
Retentivity adjustable	Yes; via non-retain property on DB
Retentivity preset	Yes
Local data	
per priority class, max.	32 768 byte; Max. 2048 bytes per block
Address area	
I/O address area	
Inputs	2 048 byte
Outputs of which distributed	2 048 byte
of which distributed	2.049 http
— Inputs	2 048 byte
Outputs Process image	2 048 byte
Inputs	2 048 byte
Outputs	2 048 byte
Inputs, adjustable	2 048 byte
Outputs, adjustable	2 048 byte
Inputs, default	128 byte
Outputs, default	128 byte
Subprocess images	120 5910
Number of subprocess images, max.	1; With PROFINET IO, the length of the user data is limited to 1600 bytes
Digital channels	
Inputs	16 384
— of which central	1 024
Outputs	16 384
— of which central	1 024
Analog channels	
Inputs	1 024
— of which central	256
Outputs	1 024
— of which central	256
Hardware configuration	
Number of expansion units, max.	3
Number of DP masters	
 integrated 	1
• via CP	4
Number of operable FMs and CPs (recommended)	
• FM	8
• CP, PtP	8
• CP, LAN	10
Rack	
Racks, max.	4
 Modules per rack, max. 	8
Time of day	
Time of day Clock	
Time of day Clock • Hardware clock (real-time)	Yes
Time of day Clock • Hardware clock (real-time) • retentive and synchronizable	Yes
Time of day Clock • Hardware clock (real-time) • retentive and synchronizable • Backup time	Yes 6 wk; At 40 °C ambient temperature
Time of day Clock • Hardware clock (real-time) • retentive and synchronizable • Backup time • Deviation per day, max.	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s
Time of day Clock • Hardware clock (real-time) • retentive and synchronizable • Backup time • Deviation per day, max. • Behavior of the clock following POWER-ON	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF
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	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s
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	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
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 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
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 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 1 0
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 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 1 0 0 to 2^31 hours (when using SFC 101)
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 of values • Granularity	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 1 0 0 to 2^31 hours (when using SFC 101) 1 h
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 Granularity retentive	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 1 0 0 to 2^31 hours (when using SFC 101)
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 Granularity retentive Clock synchronization	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 1 0 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart
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 of values • Granularity • retentive	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 1 0 0 to 2^31 hours (when using SFC 101) 1 h

 on MPI, device 	Yes
• to DP, master	Yes; With DP slave only slave clock
• on DP, device	Yes
• in AS, master	Yes
• in AS, device	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
Interfaces	
Number of PROFINET interfaces	1
Number of RS 485 interfaces	1
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. 	200 mA
Protocols	
• MPI	Yes
PROFIBUS DP master	Yes
PROFIBUS DF master PROFIBUS DP device	Yes
	No
Point-to-point connection	INU
Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
	Yes
— Routing	
— Global data communication	Yes
- S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	No; but via CP and loadable FB
— S7 communication, as server	Yes
PROFIBUS DP master	
Transmission rate, max.	12 Mbit/s
max. number of DP devices	124
Services	
— PG/OP communication	Yes
- Routing	Yes
— Global data communication	No
- S7 basic communication	Yes; I blocks only
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO
- SYNC/FREEZE	Yes
- activation/deactivation of DP devices	Yes
 max. number of DP devices that can be activated/deactivated at the same time 	8
 — Direct data exchange (slave-to-slave communication) 	Yes; as subscriber
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte

Lleas data par DD davias	
User data per DP device	044 h. +-
— Inputs, max.	244 byte
— Outputs, max.	244 byte
1st interface / PROFIBUS DP device / header	
Transmission rate, max.	12 Mbit/s
automatic baud rate search	Yes; only with passive interface
Address area, max.	32
User data per address area, max.	32 byte
Services	
— PG/OP communication	Yes
— Routing	Yes; Only with active interface
 — Global data communication 	No
— S7 basic communication	No
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes; Connection configured on one side only
— Direct data exchange (slave-to-slave	Yes
communication)	Ne
— DPV1	No
Transfer memory	244 hyte
— Inputs	244 byte
— Outputs	244 byte
2. Interface	PROFILET
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes; 10/100 Mbit/s
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	Yes
Interface types	
RJ 45 (Ethernet)	Yes
Number of ports	2
integrated switch	Yes
Protocols	
• MPI	No
PROFINET IO Controller	Yes; Also simultaneously with IO-Device functionality
PROFINET IO Device	Yes; Also simultaneously with IO Controller functionality
PROFINET CBA	Yes
 PROFIBUS DP master 	No
PROFIBUS DP device	No
 Open IE communication 	Yes; Via TCP/IP, ISO on TCP, and UDP
Web server	Yes; only read function
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: 14, 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
- Number of IO devices with prioritized startup, max.	32
- Number of connectable IO Devices, max.	128
— Of which IO devices with IRT, max.	64
— of which in line, max.	64
 — Number of IO Devices with IRT and the option "high flexibility" 	128
— of which in line, max.	61

Autobar of connectable ID Devices FRT, max. 128 Advanced connectable ID Devices FRT, max. 128 Advanced connectable ID Devices FRT, max. 128 Advanced connectation of ID Devices FRT, max. Autobar of ID Devices fragments Autobar of ID Devices fragments Advanced connectation of ID Devices Yes Autobar of ID Devices fragments Autobar of ID Devices Autobar of ID Devic		
- Achieological context on part of Devices Yes - Norber of Devices thanging during contain (partner ports), supported during contain (partner ports), supports), supported during contain (partner), supported	 Number of connectable IO Devices for RT, max. 	128
- Number of 10 Devices hard can be simulaneously and set of the s	— of which in line, max.	128
	 Activation/deactivation of IO Devices 	Yes
- Number of IO Devices per tool, max. 8 - Device replacement without awap medium Yes - Stand cycles 250 µs, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high floxibilly" option) - Uodating line 250 µs, 100 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high floxibilly" option) - Uodating line 250 µs (20 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high floxibilly" option) - Uodating line 250 µs (20 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high floxibilly" option) - Uodating line 250 µs (20 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high floxibilly" option) - ProUP - Number, max. 2 ktyle - User data consistency, max. 1 024 byte - RoUting Yes Yes - RoUting Yes - RoUting Yes - Isochtranous mode No - Isochtranous mode Yes - Number of IC Controllers with shared device, max. 2 - Number of IC Controllers with shared device, max. 2 - Number of IC Controllers with shared device, max. 2 - Number of IC Controllers with shared device. 2 - Number, max. 1 440 byte; Per IO Control		8
 Device replacement without swap medium Sand cycles Sand cycles Sold prime: 2 and replacement without swap medium Cycles in max. College in max. Cycles in max. Cycle in max. <licycle in="" li="" max.<=""> Cycle in max.<td></td><td>Yes</td></licycle>		Yes
Sence cycles 260 gs. 800 gs. 7m g. 7m g. 4 ms (not in the case of IRT with "high flexibility" Updating time 250 gs to 512 ms (depending on the operating mode, see Manual '87.300 CPU Address area	- Number of IO Devices per tool, max.	8
option) 200 bits 0 542 ms (depending on the operating mode, see Manual "S7-300 CPU 33/s dencineal Data" for more details) Address area - Inputs, max. 2 My/ce - Outputs, max. 2 My/ce - Outputs, max. 1024 by/ce - Ware data consistency, max. 1024 by/ce PROFINET IO Device - - Roding Yes - Roding Yes - Roding Yes - Indorbronus mode No - Inputs, max. Yes - Inputs, max. 1440 byle; Per IO Controller with shared device - Mumber of IO Controller with shared device - - User data per submodule, max. 1440 byle; Per IO Controller with shared device Submodule - - - Number, max. 64 - User data per submodule, max. 9 - Soluti, max. 8 - Outputs, max. 9	 Device replacement without swap medium 	Yes
	— Send cycles	250 $\mu s,$ 500 $\mu s,$ 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility"
3txC and CPU 31x, technical Data" for more details) Address area - Inputs, max. 2 ktyle - Outputs, max. 1024 byte - Bodd data consistency, max. 1024 byte PROFINET IO Device Services - PGOP communication Yes - Sort communication Yes - Sort communication Yes - Isochronous mode No - IRT Yes - PROFilenergy Yes (WIIn Isodable FBs, max. configurable connections: 14, max, number of Instalnce: 32 - Isochronous mode No - IRT Yes - PROFilenergy Yes (WIIn Isodable FBs, max. configurable connections: 14, max, number of ID controllers with shared device, max. - Isochronous mode Yes - Number of ID Controllers with shared device, max. 140 byte; Per IO Controller with shared device - Inputs, max. 140 byte; Per IO Controller with shared device - Outputs, max. 142 byte PROFINET CBA Yes - User data per submodule, max. 142 byte PROFINET CBA Yes - Subtendation Yes		
 Inputs, max. Outputs, max. Outputs, max. Outputs, max. Outputs, max. Add byte PROFINET IO Device PROFINET GRAMMERS PROFINET IO Device Shared device<td>— Updating time</td><td></td>	— Updating time	
- Oupuls, max. 1024 byte - User data consistency, max. 1024 byte PROFINET to Device Services - PROP communication - Routing - Routing - Routing - Routing - Routing - Soft communication - IRT - IRT - IRT - ROFIneergy - Shared device - Shared devi	Address area	
— Jair data consistency, max. 1624 byte PROFINET IO Device	— Inputs, max.	
PROFINET IO Device Services - PGOP communication Yes - Sourcommunication Yes - Sourcommunication Yes - Sourcommunication Yes - IRT Yes - PROFINET IO Advice Yes - PROFINET IO Controllars with shared device, max. Yes - Shared device Yes - Shared device Yes - Number of IO Controllars with shared device, max. 2 Transfer memory 1440 byte; Per IO Controllar with shared device - Outputs, max. 1440 byte; Per IO Controller with shared device - Outputs, max. 1440 byte; Per IO Controller with shared device - Outputs, max. 1440 byte; Per IO Controller with shared device - Outputs, max. 164 - User data per submodule, max. 1024 byte PROFINET CBA Yes • explic transmission Yes Open El communication Yes • Number of connections, max. 8 • Local port numbers used at the system end 0.20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34963, 34964, 65532, 65533, 65534, 65535 Protocols Yes Protocols Yes Protocols Yes Protocols Yes - Suitchover time on ine break,	— Outputs, max.	2 kbyte
Services - - PG0P communication Yes - Securing Yes - S7 communication Yes - S7 communication Yes - Secondary Yes - Isochnorous mode No - Isochnorous mode No - Isochnorous mode No - IRT Yes - PROFlenergy Yes - Secondary Yes - Number of IO Controllers with shared device, max. 2 - Transfer memory 1440 byte; Per IO Controller with shared device - Outputs, max. 1440 byte; Per IO Controller with shared device - Outputs, max. 1024 byte - Number of IO controller with shared device Yes - Used data per submodule, max. 1024 byte - Used data per submodule, max. 1024 byte PROFINET CGA Yes • Open IE communication Yes • Used of the system end 0.20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65535 • Keep-alive function, supported Yes PROFINET Media redundancy - <td>— User data consistency, max.</td> <td>1 024 byte</td>	— User data consistency, max.	1 024 byte
	PROFINET IO Device	
	Services	
	— PG/OP communication	Yes
instances: 32 No No No No PROFlenergy PSV: With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I- Device PROFlenergy Avers: With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I- Device Protections with shared device, max. Standard evice Number of IO Controllers with shared device, max. Proting max. Number, data per submodule, max. Number of connections, max. Number of connections, max. Number of stations in the string, max. Number of stations in the string, max. Number of connections, max. Number	- Routing	Yes
- IRT Yes - PROFlenergy Yes: With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I- Device - Shared device Yes - Number of IO Controllers with shared device, max. 2 Transfer memory 1 440 byte; Per IO Controller with shared device - Outputs, max. 1 440 byte; Per IO Controller with shared device - Outputs, max. 64 - Warr data per submodule, max. 64 - User data per submodule, max. 102 byte exclusit transmission Yes occlusit transmission Yes occlusit transmission Yes open IE communication 8 • Local port numbers used at the system end 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65535 • Keep-alive function, supported Yes Protocols Yes via Integrated PROFINET Interface and loadable FBs • Number of connections, max. 8 • Data length for connection type 11H, max. 1460 byte <td>— S7 communication</td> <td></td>	— S7 communication	
	— Isochronous mode	No
Device Device Yes - Number of 10 Controllers with shared device, max. 2 Transfer memory 1 440 byte; Per 10 Controller with shared device - Outputs, max. 1 440 byte; Per 10 Controller with shared device Submodules 1 440 byte; Per 10 Controller with shared device - Number, max. 64 - User data per submodule, max. 1024 byte PROFINET CBA Yes • acyclic transmission Yes • cyclic transmission Yes • cyclic transmission Yes • Local port numbers used at the system end 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65536	— IRT	Yes
Number of IO Controllers with shared device, max. 2 Transfer memory - Inputs, max. 1 440 byte; Per IO Controller with shared device Outputs, max. 1 440 byte; Per IO Controller with shared device Submodules - Number, max. 64 User data per submodule, max. 1024 byte PROFINET CBA - • acyclic transmission Yes • ocyclic transmission Yes • ocyclic transmission Yes • 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 PROFisafe Yes PROFisafe Yes Patie and undancy 200 ms; PROFINET MRP • Number of connections, max. 50 • Open IE communication Yes • Number of connection type 01H, max. 50 • Data length for connection type 11H, max. 32 768 byte • Source on connections, max. 8 • Source on connections, max. 8 • Data length for connections, max. 8 • Data length for connections, max. 8 • Data length for connections, max. 8 • Data length, max. 22 768 byte <td>— PROFlenergy</td> <td></td>	— PROFlenergy	
Transfer memory - - Inputs, max. 1 440 byte; Per IO Controller with shared device - Outputs, max. 1 440 byte; Per IO Controller with shared device - Outputs, max. 64 - User data per submodule, max. 1 024 byte PROFINET CBA - • acyclic transmission Yes • oyclic transmission Yes Open IE communication 8 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34964, 65532, 65533, 65534, 65535 • Keep-alive function, supported Yes Protocols - Yes Protocols - Ves Redundancy mode - Submodule redundancy • Switchover time on line break, typ. 200 ms; PROFINET MRP - Number of connections, max. 50 Open IE communication - Submodule FBs • Number of connections, max. 8 - Data length for connections per port, supported Yes • Yes Yes la integrated PROFINET interface and loadable FBs • Number of connections, max.	— Shared device	Yes
- Inputs, max. 1 440 byte; Per IO Controller with shared device - Outputs, max. 1 440 byte; Per IO Controller with shared device Submodules 64 - User data per submodule, max. 1 024 byte PROFINET CBA 64 • exceptic transmission Yes • cyclic transmission Yes • occeptic transmission Yes Protocols Yes Protocols Yes Protocols Yes Protocols Yes Protocols Yes - Switchover time on line break, typ. 200 ms; PROFINET MRP - Number of connection spend, max. 8 - Data length for connection type 01H, max. 1 460 byte - Source of protocols Yes - Number of connections, max. 8 - Data length for connections per port, supported Yes • TCP/IP Yes, via integrated PROFINET interface and loadable FBs - Number of connections, per 1H, max. 1 460 byte - Source for sections,	 — Number of IO Controllers with shared device, max. 	2
	Transfer memory	
Submodules 64 — Number, max. 64 — User data per submodule, max. 1024 byte PROFINET CEA • • acyclic transmission Yes • optic transmission Yes Open IE communication 8 • local port numbers used at the system end 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 • Keep-alive function, supported Yes Profiles Yes PROFISATE Yes PROFISATE Yes Protocols - - Switchover time on line break, typ. 200 ms; PROFINET MRP - Number of stations in the ring, max. 50 Open IE communication 50 Open IE communication 8 - Number of connection type 01H, max. 1460 byte - Data length for connection type 11H, max. 22768 byte - asteral passive connections per port, supported Yes - Switchover time on lines per port, supported Yes - Number of connections max. 8 - Data length for connection type 01H, max. 1460 byte - Solar length for connections max. 8 - Data length for connections, max. 8 - Data length, max. 32 768 byte - Data length, m	— Inputs, max.	1 440 byte; Per IO Controller with shared device
- Number, max. 64 - User data per submodule, max. 1024 byte PROFINET CBA - • acyclic transmission Yes • cyclic transmission Yes • Open IE communication 8 • Local port numbers used at the system end 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 • Keep-alive function, supported Yes PROFIsafe Yes PROFIsafe Yes Media redundancy - - Number of connections, max. 50 Open IE communication 8 • Number of stations in the ring, max. 50 Open IE communication 200 ms; PROFINET MRP - Number of stations in the ring, max. 50 Open IE communication 8 • TCP/IP Yes; via integrated PROFINET interface and loadable FBS • Number of connection type 01H, max. 1460 byte - Data length for connection type 01H, max. 1460 byte - several passive connections, max. 8 - Number of connections, max. 8 - Data length for connections max. 8 - Data length, max. 32 768 byte - Number of connections, max. 8 - Data length, max. 32 768 byte - Data	— Outputs, max.	1 440 byte; Per IO Controller with shared device
User data per submodule, max. 1 024 byte PROFINET CBA • acyclic transmission Yes • cyclic transmission Yes Open IE communication 8 • Local port numbers used at the system end 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535, 65534, 65535 • Keep-alive function, supported Yes Protocols - Protocols - PROFINET of stations in the ring, max. 50 Open IE communication 50 Open IE communication - - Switchover time on line break, typ. 200 ms; PROFINET MRP - Number of stations in the ring, max. 50 Open IE communication - - Number of connection type 01H, max. 1 460 byte - Data length for connection type 11H, max. 32 768 byte - Data length for connections, max. 8 - Data length for connections, max. 8 - Number of connections, max. 8 - Data length, max. 32 768 byte - Number of connections, max. 8 - Data length, max. 32 768 byte - UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte <td>Submodules</td> <td></td>	Submodules	
User data per submodule, max. 1 024 byte PROFINET CBA	— Number, max.	64
PROFINET CBA • acyclic transmission Yes • cyclic transmission Yes Open IE communication 8 • Local port numbers used at the system end 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 • Keep-alive function, supported Yes Protocols Yes PROFIsafe Yes Redundancy mode Ves Media redundancy 200 ms; PROFINET MRP - Switchover time on line break, typ. 200 ms; PROFINET MRP - Number of stations in the ring, max. 50 Open IE communication Yes • Number of connections, max. 8 - Data length for connection type 01H, max. 1 460 byte - Data length for connections per port, supported Yes • ISC-on-TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte - UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte - UDP Yes; via integrated PROFINET interface a		
• acyclic transmission Yes • cyclic transmission Yes Open IE communication ************************************		
• cyclic transmission Yes Open IE communication 8 • Number of connections, max. 8 • Local port numbers used at the system end 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65535 • Keep-alive function, supported Yes Protocols Protocols PROFIsafe Yes Redundancy mode 200 ms; PROFINET MRP - Switchover time on line break, typ. 200 ms; PROFINET MRP - Number of stations in the ring, max. 50 Open IE communication 50 Open IE connections, max. 8 - Data length for connection type 01H, max. 1 460 byte - Data length for connection type 01H, max. 32 768 byte - several passive connections, max. 8 - Data length, max. 32 768 byte - Data length, max. 32 768 byte - Number of connections, max. 8 - Data length, max. 32 768 byte - Data length, max. 32 768 byte - Data length, max. 460 byte - Data length, max. 32 768 byte - Data length, max. 48 - Data length, max.		Yes
Open IE communication 8 • Number of connections, max. 8 • Local port numbers used at the system end 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65536, 65535 • Keep-alive function, supported Yes Protocols Yes PROFIsafe Yes Redundancy mode 200 ms; PROFINET MRP - Switchover time on line break, typ. 200 ms; PROFINET MRP - Number of stations in the ring, max. 50 Open IE communication 50 Open IE connections, max. 8 - Data length for connection type 01H, max. 1460 byte - Several passive connections per port, supported Yes - Sula length for connections per port, supported Yes - Sola length for connections, max. 8 - Data length, max. 32 768 byte - Sola length, max. 32 768 byte - Number of connections, max. 8 - Data length, max. 32 768 byte - Data length, max. 32 768 byte <td></td> <td></td>		
• Number of connections, max. 8 • Local port numbers used at the system end 0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535 • Keep-alive function, supported Yes Protocols Yes Redundancy mode 200 ms; PROFINET MRP - Switchover time on line break, typ. 200 ms; PROFINET MRP - Number of stations in the ring, max. 50 Open IE communication Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length for connection type 01H, max. 1 460 byte - several passive connections, max. 8 - Number of connections, max. 8 - Data length for connection type 01H, max. 1 460 byte - several passive connections, max. 8 - Data length, for connections, max. 8 - Data length, max. 32 768 byte - String of connections, max. 8 - Data length, max. 32 768 byte - Data length, max. 1472 byte <td></td> <td></td>		
• Local port numbers used at the system end0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535• Keep-alive function, supportedYesProtocolsPROFIsafeYesRedundancy modeMedia redundancy- Switchover time on line break, typ.200 ms; PROFINET MRP- Number of stations in the ring, max.50Open IE communication• TCP/IPYes; via integrated PROFINET interface and loadable FBs- Data length for connection type 01H, max.1 460 byte- Solar length for connections per port, supportedYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length for connections per port, supportedYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.32 768 byte- Store (RFC1006)Yes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.32 768 byte- UDPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.32 768 byte- UDPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.1472 byte	· ·	8
• Keep-alive function, supported Yes Protocols PROFIsafe Yes Redundancy mode 200 ms; PROFINET MRP - Switchover time on line break, typ. 200 ms; PROFINET MRP - Number of stations in the ring, max. 50 Open IE communication 50 • TCP/IP Yes; via integrated PROFINET interface and loadable FBs - Number of connection type 01H, max. 1460 byte - Data length for connection type 01H, max. 32 768 byte - several passive connections, max. 8 - Number of connections, max. 8 - Data length for connections, max. 8 - Number of connections, max. 8 - Data length, max. 32 768 byte - Number of connections, max. 8 - Data length, max. 32 768 byte - Number of connections, max. 8 - Data length, max. 32 768 byte - UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte - Data length, max. 1472 byte Web server 1472 byte <		0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532,
Protocols PROFIsafe Yes Redundancy mode Media redundancy — Switchover time on line break, typ. 200 ms; PROFINET MRP — Number of stations in the ring, max. 50 Open IE communication 50 • TCP/IP Yes; via integrated PROFINET interface and loadable FBs • Data length for connection type 01H, max. 1 460 byte • Data length for connections per port, supported Yes; via integrated PROFINET interface and loadable FBs • So-on-TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs • Number of connections, max. 8 • Data length, for connections, max. 8 • ISO-on-TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs • Number of connections, max. 8 • Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs • Number of connections, max. 8 • Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs • Number of connections, max. 8 • Data length, max. 1 472 byte Web server Veb server <td> Keep-alive function, supported </td> <td></td>	 Keep-alive function, supported 	
PROFIsafe Yes Redundancy mode Media redundancy - Switchover time on line break, typ. 200 ms; PROFINET MRP - Number of stations in the ring, max. 50 Open IE communication Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length for connection type 01H, max. 1 460 byte - Data length for connection type 11H, max. 32 768 byte - several passive connections, max. 8 - ISO-on-TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte - UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 1472 byte Web server Veb server <td></td> <td></td>		
Redundancy mode Media redundancy - Switchover time on line break, typ. 200 ms; PROFINET MRP - Number of stations in the ring, max. 50 Open IE communication • TCP/IP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length for connection type 01H, max. 1 460 byte - Data length for connection type 11H, max. 32 768 byte - several passive connections per port, supported Yes; via integrated PROFINET interface and loadable FBs • ISO-on-TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 1472 byte Web server Veb server		Yes
Media redundancy 200 ms; PROFINET MRP - Switchover time on line break, typ. 50 Open IE communication 50 • TCP/IP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length for connection type 01H, max. 1 460 byte - Data length for connection type 11H, max. 32 768 byte - several passive connections per port, supported Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Dota length, for connections, max. 32 768 byte - Several passive connections, max. 8 - Data length, max. 32 768 byte - Number of connections, max. 8 - Data length, max. 32 768 byte - Data length, max. 32 768 byte - Data length, max. 32 768 byte - Data length, max. 8 - Data length, max. 8 - Data length, max. 32 768 byte - UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 1 472 byte Web server Veb server <td></td> <td></td>		
- Switchover time on line break, typ.200 ms; PROFINET MRP- Number of stations in the ring, max.50Open IE communicationYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length for connection type 01H, max.1 460 byte- Data length for connection type 11H, max.32 768 byte- several passive connections, max.8- Number of connections, max.8- Data length for connections, max.20 Yes; via integrated PROFINET interface and loadable FBs- Number of connections, max.32 768 byte- Number of connections, max.8- Data length, max.32 768 byte- Data length, max.1 472 byteWeb serverVeb server		
- Number of stations in the ring, max. 50 Open IE communication Yes; via integrated PROFINET interface and loadable FBs - TCP/IP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length for connection type 01H, max. 1 460 byte - Data length for connection type 11H, max. 32 768 byte - several passive connections per port, supported Yes; via integrated PROFINET interface and loadable FBs - ISO-on-TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte - Data length, max. 32 768 byte - Data length, max. 32 768 byte - Data length, max. 8 - Data length, max. 1472 byte Web server Veb server	-	200 ms ⁻ PROFINET MRP
Open IE communication Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length for connection type 01H, max. 1 460 byte - Data length for connection type 11H, max. 32 768 byte - several passive connections per port, supported Yes; via integrated PROFINET interface and loadable FBs • ISO-on-TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte VES; via integrated PROFINET interface and loadable FBs - Data length, max. 32 768 byte Ves; via integrated PROFINET interface and loadable FBs - Data length, max. 32 768 byte Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 1 472 byte Web server Ves		
• TCP/IPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length for connection type 01H, max.1 460 byte- Data length for connection type 11H, max.32 768 byte- several passive connections per port, supportedYes• ISO-on-TCP (RFC1006)Yes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.32 768 byte• UDPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.32 768 byte• UDPYes; via integrated PROFINET interface and loadable FBs- Number of connections, max.8- Data length, max.1472 byteWeb serverIntegrated PROFINET interface and loadable FBs		
- Number of connections, max. 8 - Data length for connection type 01H, max. 1 460 byte - Data length for connection type 11H, max. 32 768 byte - several passive connections per port, supported Yes • ISO-on-TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 1472 byte Web server Yes	· ·	Ves: via integrated PROFINET interface and loadable EPs
— Data length for connection type 01H, max.1 460 byte— Data length for connection type 11H, max.32 768 byte— several passive connections per port, supportedYes• ISO-on-TCP (RFC1006)Yes; via integrated PROFINET interface and loadable FBs— Number of connections, max.8— Data length, max.32 768 byte• UDPYes; via integrated PROFINET interface and loadable FBs— Number of connections, max.8— Data length, max.32 768 byte• UDPYes; via integrated PROFINET interface and loadable FBs— Number of connections, max.8— Data length, max.1 472 byteWeb serverVes		-
- Data length for connection type 11H, max. 32 768 byte - several passive connections per port, supported Yes • ISO-on-TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte - UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 1472 byte Web server Her Provide		
- several passive connections per port, supported Yes • ISO-on-TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 8 - Data length, max. 8 - Data length, max. 1 472 byte Web server Ves		
• ISO-on-TCP (RFC1006) Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 8 - Data length, max. 1472 byte Web server Yes		
- Number of connections, max. 8 - Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 1 472 byte Web server		
- Data length, max. 32 768 byte • UDP Yes; via integrated PROFINET interface and loadable FBs - Number of connections, max. 8 - Data length, max. 1 472 byte		-
UDP Yes; via integrated PROFINET interface and loadable FBs Number of connections, max. Data length, max. 1472 byte		
Number of connections, max. 8 Data length, max. 1 472 byte Web server 1 472 byte	-	
— Data length, max. 1 472 byte Web server		-
Web server	 Number of connections, max. 	
		1 472 byte
supported Yes; only read function	Web server	
	supported	Yes; only read function

User-defined websites	Yes
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.	8
Number of GD packets, transmitter, max.	8
Number of GD packets, receiver, max.	8
 Size of GD packets, max. 	22 byte
 Size of GD packet (of which consistent), max. 	22 byte
S7 basic communication	
supported	Yes
• User data per job, max.	76 byte
 User data per job (of which consistent), max. 	76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET
	as server)
S7 communication	
supported	Yes
• as server	Yes
• as client	Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB
User data per job, max.	See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)
S5 compatible communication	
supported	Yes; via CP and loadable FC
communication functions / PROFINET CBA (with set target commu	
Setpoint for the CPU communication load	50 %
Number of remote interconnection partners	32
number of master/device functions	30
total of all master/device connections	1 000
 data length of all incoming master/device connections, max. 	4 000 byte
 data length of all outgoing master/device connections, max. 	4 000 byte
 Number of device-internal and PROFIBUS interconnections 	500
 Data length of device-internal und PROFIBUS interconnections, max. 	4 000 byte
 Data length per connection, max. 	1 400 byte
performance data / PROFINET CBA / remote interconnection /	
— Sampling interval, min.	500 ms
 Number of incoming interconnections 	100
 Number of outgoing interconnections 	100
— Data length of all incoming interconnections, max.	2 000 byte
— Data length of all outgoing interconnections, max.	2 000 byte
— Data length per connection, max.	1 400 byte
performance data / PROFINET CBA / remote interconnection /	
 Transmission frequency: Transmission interval, min. 	10 ms
 Number of incoming interconnections 	200 200
 — Number of outgoing interconnections — Data length of all incoming interconnections 	
 Data length of all incoming interconnections, max. Data length of all outgoing interconnections, max. 	2 000 byte 2 000 byte
 Data length of an outgoing interconnections, max. Data length per connection, max. 	450 byte
performance data / PROFINET CBA / HMI variables via PROF	
— Number of stations that can log on for HMI variables (PN OPC/iMap)	3; 2x PN OPC/1x iMap
— HMI variable updating	500 ms
— Number of HMI variables	200
 Data length of all HMI variables, max. 	2 000 byte
performance data / PROFINET CBA / PROFIBUS proxy function	•
— supported	Yes

 — Number of linked PROFIBUS devices 	16
— Data length per connection, max.	240 byte; Slave-dependent
Number of connections	
• overall	16
usable for PG communication	15
— reserved for PG communication	1
— adjustable for PG communication, min.	1
— adjustable for PG communication, max.	15
usable for OP communication	15
— reserved for OP communication	1
— adjustable for OP communication, min.	1
— adjustable for OP communication, max.	15
usable for S7 basic communication	14
 — reserved for S7 basic communication 	0
- adjustable for S7 basic communication, min.	0
— adjustable for S7 basic communication, max.	14
usable for S7 communication	14
- reserved for S7 communication	0
— adjustable for S7 communication, min.	0
— adjustable for S7 communication, max.	14
 total number of instances, max. 	32
usable for routing	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max.
	14; X2 as PROFINET: 24 max.
S7 message functions	
Number of login stations for message functions, max.	16; Depending on the configured connections for PG/OP and S7 basic communication
Process diagnostic messages	Yes
simultaneously active Alarm_S blocks, max.	300
Test commissioning functions	
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
— 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	
 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:

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