6ES7317-2FK14-0AB0

## **Data sheet**



SIMATIC S7-300 CPU317F-2 PN/DP, Central processing unit with 1.5 MB work memory, 1st interface MPI/DP 12 Mbit/s, 2nd interface Ethernet PROFINET, with 2-port switch, Micro Memory Card required

General information	
Firmware version	V3.2
Product function	
Isochronous mode	Yes; Via PROFIBUS DP or PROFINET interface
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V5.5 or higher, Distributed Safety V5.4 SP4
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	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
I²t	1 A <sup>2</sup> ·s
Power loss	
Power loss, typ.	4.65 W
Memory	
Work memory	
<ul><li>integrated</li></ul>	1 536 kbyte
• expandable	No
Load memory	
<ul><li>Plug-in (MMC)</li></ul>	Yes
<ul> <li>Plug-in (MMC), max.</li> </ul>	8 Mbyte
<ul> <li>Data management on MMC (after last programming), min.</li> </ul>	10 y
Backup	
• present	Yes; Guaranteed by MMC (maintenance-free)
without battery	Yes; Program and data
CPU processing times	
for bit operations, typ.	0.025 μs
for word operations, typ.	0.03 μs
for fixed point arithmetic, typ.	0.04 μs

### CPUSHOCKS    Number of blocks (total)   2 0.48; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.	for floating point arithmetic, typ.	0.16 μs
B	CPU-blocks	
Number, max.	Number of blocks (total)	
• Size, max.  • Number, max. • Size, max.  • Size, max.  • Size, max.  • Size, max.  • Size, max.  • Size, max.  • Size, max.  • Size, max.  • Size, max.  • Size, max.  • Number of fice cycle OBs • Number of fice cycle OBs • Number of delay alarm OBs • Number of delay alarm OBs • Number of delay alarm OBs • Number of process alarm OBs • Number of Size, max.  • Number of delay alarm OBs • Number of Oper of alarm OBs • Number of Size, max.  • Number of Size,	DB	
Number, max.   2 048; Number range: 0 to 7999	<ul> <li>Number, max.</li> </ul>	2 048; Number range: 1 to 16000
Number, max.	• Size, max.	64 kbyte
• Size, max.  • Number, max. • Size, max.  • Size, max.  • Size, max.  • Size, max.  • Size, max.  • Number of free cycle OBs • Number of free cycle OBs • Number of free cycle OBs • Number of free siam OBs • Number of delay alarm OBs • Number of cyclic interrupt OBs • Number of process alarm OBs • Number of Ibertal Indian OBs • Additional Within an error OBs • Additional Within an error OB • Number • Ibertal Indian OBs • Number • Ibertal Indian OBs • Number • Ibertal Indian OBs • Number • Number • Ibertal Indian OBs • Number • Numbe	FB	
FC	<ul> <li>Number, max.</li> </ul>	2 048; Number range: 0 to 7999
Number, max.	• Size, max.	64 kbyte
● Size, max. 64 kbyte  ● Size, max. 64 kbyte  • Number of free cycle OBs 1; OB 1  • Number of time alam OBs 1; OB 10  • Number of delay alam OBs 2; OB 20, 21  • Number of of process alam OBs 1; OB 40  • Number of DPV1 alam OBs 1; OB 40  • Number of Incellar alam OBs 1; OB 40  • Number of Incellar alam OBs 1; OB 40  • Number of Incellar alam OBs 1; OB 40  • Number of synchronous mode OBs 1; OB 61 - Spochronous mode is possible either on DP or PROFINET IO (not simultaneously)  • Number of synchronous error OBs 6; OB 80, 82, 83, 85, 87 (OB83 only for PROFINET IO)  • Number of synchronous error OBs 6; OB 80, 82, 83, 85, 87 (OB83 only for PROFINET IO)  • Number of synchronous error OB 4  • Number of synchronous error OB 4  • Per priority class 6  • additional within an error OB 4  • Number of synchronous error OB 512  Retentivity  - adjustable 7eset 2, 0 to 2 7  Counters increas and their retentivity  7 counter	FC	
Size, max.   64 kbyte   1, OB 1	<ul><li>Number, max.</li></ul>	2 048; Number range: 0 to 7999
	• Size, max.	64 kbyte
Number of free cycle OBs     Number of time alarm OBs     Number of delay alarm OBs     Number of delay alarm OBs     Number of process alarm OBs     Number of process alarm OBs     Number of process alarm OBs     Number of Investment of State of St	OB	
Number of time alarm OBs     Number of delay alarm OBs     Number of cyclic interrupt OBs     Number of process alarm OBs     Number of process alarm OBs     Number of process alarm OBs     Number of isochronous mode OBs     Number of isochronous mode OBs     Number of sartup OBs     Number of sartup OBs     Number of sartup OBs     Number of saynchronous error OBs     Number of asynchronous error OBs     Number of processed to the processed of the processed o	<ul> <li>Size, max.</li> </ul>	64 kbyte
Number of delay alarm OBs     Number of cyclic interrupt OBs     Number of process alarm OBs     Number of process alarm OBs     Number of process alarm OBs     Number of isochronous mode OBs     Number of isochronous mode OBs     Number of startup OBs     Number of sartup OBs     Number of sartup OBs     Number of sarynchronous error OBs     Number of synchronous error OBs     Num	<ul> <li>Number of free cycle OBs</li> </ul>	1; OB 1
Number of cyclic interrupt OBs     Number of process alarm OBs     Number of DPV1 alarm OBs     Number of DPV1 alarm OBs     Number of DPV1 alarm OBs     Number of sisochronous mode OBs     Number of sartup OBs     Number of sartup OBs     Number of sarynchronous error OBs     Number of asynchronous error OBs     Number of synchronous error OBs      Number of synchronous error OBs	<ul> <li>Number of time alarm OBs</li> </ul>	1; OB 10
Number of process alarm OBs     Number of DPV1 alarm OBs     Number of sochronous mode OBs     Number of sartup OBs     Number of sartup OBs     Number of sartup OBs     Number of synchronous error OB     Number of synchronous error OBs     Number	<ul> <li>Number of delay alarm OBs</li> </ul>	2; OB 20, 21
Number of DPV1 alarm OBs Number of isochronous mode OBs Number of startup OBs Number of startup OBs Number of synchronous error OBs Number of synchronous err	<ul> <li>Number of cyclic interrupt OBs</li> </ul>	4; OB 32, 33, 34, 35
Number of isochronous mode OBs Number of startup OBs Number of startup OBs Number of asynchronous error OBs Number of asynchronous error OBs Number of asynchronous error OBs Number of synchronous error OB	<ul> <li>Number of process alarm OBs</li> </ul>	1; OB 40
(not simultaneously)   Number of startup OBs   1; OB 100     Number of asynchronous error OBs   6; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO)     Number of synchronous error OBs   2; OB 121, 122     Nesting depth	<ul> <li>Number of DPV1 alarm OBs</li> </ul>	3; OB 55, 56, 57
Number of asynchronous error OBs     Number of synchronous error OB     Number of synchronous error OB     Number of such distinct an er	Number of isochronous mode OBs	
● Number of synchronous error OBs         2; OB 121, 122           Nesting depth         16           ● per priority class         4           ● additional within an error OB         4           Counters, timers and their retentivity           S7 counter           ● Number         512           Retentivity	<ul> <li>Number of startup OBs</li> </ul>	1; OB 100
Nesting depth	<ul> <li>Number of asynchronous error OBs</li> </ul>	6; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO)
● per priority class         16           ● additional within an error OB         4           Counters, timers and their retentivity           S7 counter         512           Retentivity         Festentivity           — adjustable         Yes           — lower limit         0           — upper limit         511           — preset         2 0 to 2 7           Counting range           — adjustable         Yes           — lower limit         0           — upper limit         999           IEC counter         Yes           ● present         Yes           ● Number         SFB           ● Number         512           Retentivity         Ves           — lower limit         0           — lower limit         0           — lower limit         0           — preset         No retentivity           Time range         No retentivity           Time range         Image: Color of the proper limit         10 ms           — upper limit         9 990 s           IEC timer         Present	<ul> <li>Number of synchronous error OBs</li> </ul>	2; OB 121, 122
• additional within an error OB  Counters, timers and their retentivity  Focunter  Number  Number  Number  S12  Retentivity  - adjustable - lower limit - preset - lower limit - upper limit - louwer limit - upper limit - to define the substitute of	Nesting depth	
Solution   Solution	<ul> <li>per priority class</li> </ul>	16
Number   512	<ul> <li>additional within an error OB</li> </ul>	4
● Number 512  Retentivity  adjustable Yes   lower limit 0   upper limit 511   preset Z 0 to Z 7  Counting range   adjustable Yes   lower limit 0   upper limit 999  IEC counter   ● present Yes   ● Type	Counters, timers and their retentivity	
Retentivity  - adjustable Yes - lower limit 0 - upper limit 511 - preset Z 0 to Z 7  Counting range - adjustable Yes - lower limit 0 - upper limit 9999  IEC counter  • present Yes • Number Yes • Number Unlimited (limited only by RAM capacity)  S7 times  • Number S12  Retentivity - adjustable Yes - lower limit 0 - upper limit 0 - upper limit 0 - upper limit 0 - upper limit 0 - lower limit 0 - lower limit 0 - upper limit 511 - preset No retentivity  Time range - lower limit 9 9990 s  IEC timer	S7 counter	
— adjustable         Yes           — lower limit         0           — upper limit         511           — preset         Z 0 to Z 7           Counting range         —           — adjustable         Yes           — lower limit         0           — upper limit         999           IEC counter         Yes           • Type         SFB           • Number         SFB           • Number         512           Retentivity         Yes           — 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	<ul><li>Number</li></ul>	512
lower limit upper limit upper limit preset Z 0 to Z 7  Counting range adjustable lower limit upper limit upper limit upper limit upper limit ypesent Yes Type Number Number Number Vumber Sta Retentivity adjustable lower limit upper limit upper limit upper limit upper limit upper limit upper limit preset lower limit upper limit uppe	Retentivity	
— upper limit         511           — preset         Z 0 to Z 7           Counting range           — adjustable         Yes           — lower limit         0           — upper limit         999           IEC counter           ● present         Yes           ● Type         SFB           ● Number         Unlimited (limited only by RAM capacity)           S7 times           ● Number         512           Retentivity           — adjustable         Yes           — lower limit         0           — upper limit         511           — preset         No retentivity           Time range         —           — lower limit         10 ms           — upper limit         9 990 s           IEC timer           ● present         Yes	— adjustable	Yes
— preset         Z 0 to Z 7           Counting range         Yes           — lower limit         0           — upper limit         999           IEC counter           ● present         Yes           ● Type         SFB           ● Number         Unlimited (limited only by RAM capacity)           S7 times           ● Number         512           Retentivity           — adjustable         Yes           — lower limit         0           — upper limit         511           — preset         No retentivity           Time range         —           — lower limit         10 ms           — upper limit         9 990 s           IEC timer           ● present         Yes	— lower limit	0
Counting range  - adjustable Yes - lower limit 0 - upper limit 9999  IEC counter  • present Yes • Type SFB • Number Unlimited (limited only by RAM capacity)  S7 times  • Number 512  Retentivity  - adjustable Yes - lower limit 0 - upper limit 511 - preset No retentivity  Time range - lower limit 10 ms - upper limit 9 990 s  IEC timer • present Yes	— upper limit	511
— adjustable         Yes           — lower limit         0           — upper limit         999           IEC counter         Yes           ● present         Yes           ● Type         SFB           ● Number         Unlimited (limited only by RAM capacity)           S7 times         512           Retentivity         Yes           — adjustable         Yes           — lower limit         0           — upper limit         511           — preset         No retentivity           Time range         No retentivity           IEC timer         9 990 s           IEC timer         Yes	— preset	Z 0 to Z 7
— lower limit         999           IEC counter           ● present         Yes           ● Type         SFB           ● Number         Unlimited (limited only by RAM capacity)           S7 times           ● Number         512           Retentivity         — adjustable           — lower limit         0           — upper limit         511           — preset         No retentivity           Time range           — lower limit         10 ms           — upper limit         9 990 s           IEC timer           ● present         Yes	Counting range	
Decide	— adjustable	Yes
FEC counter	— lower limit	0
<ul> <li>◆ present</li> <li>◆ Type</li> <li>◆ Number</li> <li>Unlimited (limited only by RAM capacity)</li> <li>S7 times</li> <li>◆ Number</li> <li>★ Number</li> <li>★ Pas</li> <li>Adjustable</li> <li>Adjustable</li> <li>Algustable</li> <li>Algu</li></ul>	— upper limit	999
● Type         SFB           ● Number         Unlimited (limited only by RAM capacity)           S7 times           ● Number         512           Retentivity           — adjustable         Yes           — lower limit         0           — upper limit         511           — preset         No retentivity           Time range         — lower limit         10 ms           — upper limit         9 990 s           IEC timer           ● present         Yes	IEC counter	
Number Unlimited (limited only by RAM capacity)  S7 times      Number 512  Retentivity      — adjustable Yes     — lower limit 0     — upper limit 511     — preset No retentivity  Time range      — lower limit 10 ms     — upper limit 9 990 s  IEC timer      ● present Yes	• present	Yes
S7 times         512           Retentivity         Yes           — lower limit         0           — upper limit         511           — preset         No retentivity           Time range         — lower limit         10 ms           — upper limit         9 990 s           IEC timer         Yes	• Type	SFB
● Number 512  Retentivity	Number	Unlimited (limited only by RAM capacity)
Retentivity         — adjustable       Yes         — lower limit       0         — upper limit       511         — preset       No retentivity         Time range         — lower limit       10 ms         — upper limit       9 990 s         IEC timer         ● present       Yes	S7 times	
— 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	Number	512
— lower limit         0           — upper limit         511           — preset         No retentivity           Time range           — lower limit         10 ms           — upper limit         9 990 s           IEC timer           ● present         Yes	Retentivity	
— upper limit       511         — preset       No retentivity         Time range         — lower limit       10 ms         — upper limit       9 990 s         IEC timer         ● present       Yes	— adjustable	Yes
— preset No retentivity  Time range  — lower limit 10 ms — upper limit 9 990 s  IEC timer  ● present Yes	— lower limit	0
Time range         — lower limit       10 ms         — upper limit       9 990 s         IEC timer         ● present       Yes	— upper limit	511
— lower limit       10 ms         — upper limit       9 990 s         IEC timer         ● present       Yes	— preset	No retentivity
— upper limit 9 990 s  IEC timer  ● present Yes	Time range	
IEC timer  ● present  Yes	— lower limit	10 ms
• present Yes	— upper limit	9 990 s
	IEC timer	
• Type SFB	• present	Yes
· ·	• Type	SFB

Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	256 kbyte
Flag	
• Size, max.	4 096 byte
Retentivity available	Yes; From MB 0 to MB 4 095
Retentivity preset	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
Data blocks	
Retentivity adjustable	Yes; via non-retain property on DB
Retentivity preset	Yes
Local data	
per priority class, max.	32 768 byte; Max. 2048 bytes per block
Address area	
I/O address area	
• Inputs	8 192 byte
• Outputs	8 192 byte
of which distributed	
— Inputs	8 192 byte
— Outputs	8 192 byte
Process image	
• Inputs	8 192 byte
Outputs	8 192 byte
• Inputs, adjustable	8 192 byte
Outputs, adjustable	8 192 byte
<ul><li>Inputs, default</li></ul>	256 byte
Outputs, default	256 byte
Subprocess images	
Number of subprocess images, max.	1; With PROFINET IO, the length of the user data is limited to 1600
	bytes
Digital channels	
• Inputs	65 536
— of which central	1 024
<ul><li>Outputs</li></ul>	65 536
— of which central	1 024
Analog channels	
• Inputs	4 096
— of which central	256
Outputs	4 096
— of which central	256
Hardware configuration	
Number of expansion units, max.	3
Number of DP masters	
• integrated	1
• via CP	4
Number of operable FMs and CPs (recommended)	
• FM	8
• CP, PtP	8
• CP, LAN	10
Rack	
• Racks, max.	4
Modules per rack, max.	8
Time of day	
Clock	
<ul> <li>Hardware clock (real-time)</li> </ul>	Yes
<ul> <li>retentive and synchronizable</li> </ul>	Yes
Backup time	6 wk; At 40 °C ambient temperature
<ul> <li>Deviation per day, max.</li> </ul>	10 s; Typ.: 2 s

Debession of the sheet following DOWED ON	Olaska santinus a marina after DOMED OFF
Behavior of the clock following POWER-ON	Clock continues running after POWER OFF
<ul> <li>Behavior of the clock following expiry of backup period</li> </ul>	Clock continues to run with the time at which the power failure occurred
Operating hours counter	
Number	4
Number/Number range	0 to 3
Range of values	0 to 2^31 hours (when using SFC 101)
Granularity	1 h
• retentive	Yes; Must be restarted at each restart
Clock synchronization	100, made be restance at each restance
• supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
• to DP, master	Yes; With DP slave only slave clock
• to DP, slave	Yes
• in AS, master	Yes
• in AS, slave	Yes
• on Ethernet via NTP	Yes; As client
Digital inputs	165, 75 61611
	0
Number of digital inputs	0
Digital outputs	0
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
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
<ul> <li>Output current of the interface, max.</li> </ul>	200 mA
Protocols	
• MPI	Yes
PROFIBUS DP master	Yes
PROFIBUS DP slave	Yes
Point-to-point connection	No
MPI	
Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	No; but via CP and loadable FB
— S7 communication, as server	Yes
PROFIBUS DP master	
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	124
Services	
— PG/OP communication	Yes
— Routing	Yes
rodding	100

<ul> <li>Global data communication</li> </ul>	No
<ul> <li>S7 basic communication</li> </ul>	Yes; I blocks only
— S7 communication	Yes
<ul> <li>— S7 communication, as client</li> </ul>	No
<ul> <li>— S7 communication, as server</li> </ul>	Yes
— 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
<ul> <li>Number of DP slaves that can be</li> </ul>	8
simultaneously activated/deactivated, max.	
<ul> <li>— Direct data exchange (slave-to-slave</li> </ul>	Yes; as subscriber
communication)	
— DPV1	Yes
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
PROFIBUS DP slave	
Transmission rate, max.	12 Mbit/s
automatic baud rate search	Yes; only with passive interface
<ul> <li>Address area, max.</li> </ul>	32
User data per address area, max.	32 byte
Services	02 2).0
— 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
<ul> <li>S7 communication, as server</li> </ul>	Yes; Connection configured on one side only
Direct data exchange (slave-to-slave	Yes
communication)	Al-
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
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	100
	No
MPI      DESCRIPTION CONTROLLER	No
PROFINET IO Controller	Yes; Also simultaneously with IO-Device functionality
PROFINET IO Device	Yes; Also simultaneously with IO Controller functionality
PROFINET CBA	Yes
<ul> <li>PROFIBUS DP master</li> </ul>	No
<ul> <li>PROFIBUS DP slave</li> </ul>	No
<ul> <li>Open IE communication</li> </ul>	Yes; Via TCP/IP, ISO on TCP, and UDP

Web server	Yes
Media redundancy	Yes
ROFINET IO Controller	400 MI W
Transmission rate, max.	100 Mbit/s
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	Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO
— IRT	Yes
<ul> <li>Shared device</li> </ul>	Yes
<ul> <li>Prioritized startup</li> </ul>	Yes
<ul> <li>Number of IO devices with prioritized startup, max.</li> </ul>	32
<ul> <li>Number of connectable IO Devices, max.</li> </ul>	128
<ul> <li>Of which IO devices with IRT, max.</li> </ul>	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
<ul> <li>Number of connectable IO Devices for RT, max.</li> </ul>	128
— of which in line, max.	128
<ul> <li>Activation/deactivation of IO Devices</li> </ul>	Yes
Number of IO Devices that can be simultaneously activated/deactivated, max.	8
<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 flexibility" option)
— Updating time	250 µs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, technical Data" for more details)
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data consistency, max.	1 024 byte
OFINET IO Device	
Services	
— PG/OP communication	Yes
— Routing	Yes
— S7 communication	Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32
— Isochronous mode	No
— ISOCITIONOUS Mode  — IRT	Yes
— PROFlenergy	Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard F for I-Device
— Shared device	Yes
Number of IO Controllers with shared device,	2
max.	_
Transfer memory	1.440 byte: Per IO Controller with abared devices
— 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
<ul> <li>User data per submodule, max.</li> </ul>	1 024 byte
ROFINET CBA	

ovelic transmission	Yes
cyclic transmission  Open IE communication	103
Number of connections, max.	16
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	
Redundancy mode	
Media redundancy	
Switchover time on line break, typ.	200 ms; PROFINET MRP
<ul> <li>Number of stations in the ring, max.</li> </ul>	50
Open IE communication	
• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
<ul> <li>Number of connections, max.</li> </ul>	16
<ul> <li>Data length for connection type 01H, max.</li> </ul>	1 460 byte
<ul> <li>Data length for connection type 11H, max.</li> </ul>	32 768 byte
<ul> <li>several passive connections per port, supported</li> </ul>	Yes
• ISO-on-TCP (RFC1006)	Yes; via integrated PROFINET interface and loadable FBs
<ul> <li>Number of connections, max.</li> </ul>	16
— Data length, max.	32 768 byte
• UDP	Yes; via integrated PROFINET interface and loadable FBs
<ul><li>Number of connections, max.</li></ul>	16
— Data length, max.	1 472 byte
Web server	
<ul><li>supported</li></ul>	Yes
<ul> <li>User-defined websites</li> </ul>	Yes
Number of HTTP clients	5
Communication functions	
PG/OP communication	Yes
Data record routing	Yes
Global data communication	
<ul><li>supported</li></ul>	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	
• 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	v
<ul><li>supported</li></ul>	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
PROFINET CBA (at set setpoint communication load)	50.04
Setpoint for the CPU communication load	50 %
Number of remote interconnection partners	32
Number of functions, master/slave	30
Total of all master/slave connections	1 000
<ul> <li>Data length of all incoming connections</li> </ul>	4 000 byte

master/alaya, may	
master/slave, max.	4 000 b. t-
<ul> <li>Data length of all outgoing connections master/slave, max.</li> </ul>	4 000 byte
<ul> <li>Number of device-internal and PROFIBUS interconnections</li> </ul>	500
<ul> <li>Data length of device-internal und PROFIBUS interconnections, max.</li> </ul>	4 000 byte
<ul> <li>Data length per connection, max.</li> </ul>	1 400 byte
Remote interconnections with acyclic transmission	·
— Sampling interval, min.	500 ms
Number of incoming interconnections	100
Number of outgoing interconnections	100
<ul> <li>Data length of all incoming interconnections, max.</li> </ul>	2 000 byte
<ul> <li>Data length of all outgoing interconnections, max.</li> </ul>	2 000 byte
Data length per connection, max.	1 400 byte
Remote interconnections with cyclic transmission	
Transmission frequency: Transmission interval, min.	10 ms
Number of incoming interconnections	200
Number of outgoing interconnections	200
Data length of all incoming interconnections,	2 000 byte
max.	
<ul> <li>Data length of all outgoing interconnections, max.</li> </ul>	2 000 byte
Data length per connection, max.	450 byte
HMI variables via PROFINET (acyclic)	
<ul> <li>Number of stations that can log on for HMI variables (PN OPC/iMap)</li> </ul>	3; 2x PN OPC/1x iMap
<ul> <li>HMI variable updating</li> </ul>	500 ms
<ul> <li>Number of HMI variables</li> </ul>	200
<ul> <li>Data length of all HMI variables, max.</li> </ul>	2 000 byte
PROFIBUS proxy functionality	
— supported	Yes
<ul> <li>Number of linked PROFIBUS devices</li> </ul>	16
Data length per connection, max.	240 byte; Slave-dependent
Number of connections	
• overall	32
<ul> <li>usable for PG communication</li> </ul>	31
<ul> <li>reserved for PG communication</li> </ul>	1
<ul> <li>adjustable for PG communication, min.</li> </ul>	1
<ul> <li>adjustable for PG communication, max.</li> </ul>	31
<ul> <li>usable for OP communication</li> </ul>	31
<ul> <li>reserved for OP communication</li> </ul>	1
<ul> <li>adjustable for OP communication, min.</li> </ul>	1
<ul> <li>adjustable for OP communication, max.</li> </ul>	31
<ul> <li>usable for S7 basic communication</li> </ul>	30
<ul> <li>reserved for S7 basic communication</li> </ul>	0
<ul> <li>adjustable for S7 basic communication, min.</li> </ul>	0
<ul> <li>adjustable for S7 basic communication, max.</li> </ul>	30
usable for S7 communication	16
— reserved for S7 communication	0
— adjustable for S7 communication, min.	0
— adjustable for S7 communication, max.	16
• total number of instances, max.	32
usable for routing	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as 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

simultaneously active Alarm-S blocks, max.  Test commissioning functions  Status block  Single step  Number of breakpoints  • Status/control  • Status/control  • Status/control  • Status/control  • Status/control variable  • Variables  • Number of variables, max.  — of which status variables, max.  — of which status variables, max.  — of which status variables, max.  — of which control variables, max.  — of which control variables, max.  — of which control variables, max.  — of which powerfail-proof  • Forcing, variables  • Number of variables, max.  10  Diagnostic buffer  • present  • present  • present  • present  • present  • which powerfail-proof  • Number of entries, max.  — adjustable  — of which powerfail-proof  • Number of entries readable in RUN, max.  — adjustable  — preset  10  Service data  • can be read out  • can be read out  • can be read out  • rmx.  • con be read out  • step?  • STEP?  • Yes; V5.5 or higher  Programming  • Command set  • Nesting levels  • System functions (SFC)  • System functions (SFC)  • System function blocks (SFB)  Programming language  • CCC  — CRAPH — Hidraphis  — Hidraphis  — Horaphis — Yes  Know-how protection  • Block encryption  • Block encryption  Width  Height — Depth  Weights		
Status block	Process diagnostic messages	Yes
Status block Single step Yes Number of breakpoints Status/control variable Variables Variables Number of variables, max. Of which status variables, max. Status/control variables, max. Of which status variables, max. Of which control variables, max. Of which status variables, max. Of which control variables, max. Of which control variables, max.  Forcing Forcing Forcing Forcing Of variables Number of variables, max. Of which powerfall-proof Number of entries, max. Of which powerfall-proof Number of entries readable in RUN, max. Of which powerfall-proof Number of entries readable in RUN, max. Of which powerfall-proof Number of entries readable in RUN, max. Of which powerfall-proof Number of entries readable in RUN, max. Of which powerfall-proof Number of entries readable in RUN, max. Of which powerfall-proof Number of entries readable in RUN, max. Of which powerfall-proof Number of entries readable in RUN, max. Of which powerfall-proof Number of entries readable in RUN, max. Of which powerfall-proof Number of entries readable in RUN, max. Of which powerfall-proof Number of entries readable in RUN, max. Of which powerfall-proof Number of entries readable in RUN, max. Of which powerfall-proof Number of entries readable in RUN, max. Of which powerfall-proof Of which powerfall-proo	·	300
Single step   Yes	Test commissioning functions	
Number of breakpoints  Status/control variable  Status/control variables  Variables  Number of variables, max.  of which status variables, max.  10  Forcing  Forcing  Forcing, variables  Number of variables, max.  10  Diagnosus buffer  Percing, variables  Number of variables, max.  10  Diagnosus buffer  Percing, variables  Number of variables, max.  10  Diagnosus buffer  Percing, variables  No  of which powerfail-proof  Number of entries, max.  adjustable  of which powerfail-proof  Number of entries readable in RUN, max.  - adjustable  - preset  Service data  can be read out  Ambient temperature during operation  min.  max.  Configuration  Con	Status block	
Status/control variable  Status/control variables  Ves Variables Number of variables, max.  of which status variables, max.  10  Forcing Forcing Forcing, variables Number of variables, max.  Forcing Forcing Forcing, variables Number of variables, max.  14  Forcing Forcing Forcing, variables Number of variables, max.  10  Diagnostic buffer  present Number of variables, max.  adjustable of which powerfail-proof Number of entries, max.  adjustable ves ves ves ves; from 10 to 499 ves; from 10 to 499 ves; from 10 to 499  Service data can be read out Ves  Ambient conditions  Ambient conditions  Ambient temperature during operation max.  STEP 7  Ves; V5.5 or higher  Programming Comfiguration  Configuration software Styles function (SFC) System function blocks (SFB) Programming language  —LAD —FBD —SCL —SCL —SCL —SCL —Yes —SCL —SCL —Yes —SCL —SCL —Yes —SCL —CFC —GRAPH —HiGraph®  Know-how protection Block encryption  Wedth Height —Bight —Bight  More  Weth  Vesignts  Weights  Ves  With S7 block Privacy  Weights  Weights		Yes
Status/control variable Variables Variables Number of variables, max. — of which status variables, max. — of which control variables, max.  14  Forcing Forcing Forcing, variables Number of variables, max.  10  Diagnostic buffer  • present • Number of variables, max.  — adjustable — of which powerfail-proof • Number of entries readable in RUN, max. — adjustable — of which powerfail-proof • Number of entries readable in RUN, max. — adjustable — preset  10  Service data • can be read out  * Yes  Ambient conditions  Ambient temperature during operation • min. • min. • min. • min. • configuration  Configuration  Configuration  Configuration  Configuration  Configuration  Configuration software • STEP 7  * Yes, V5.5 or higher  Programming • Command set • Nesting levels 8 see instruction list • Nesting levels • System function blocks (SFB)  Programming language  — LAD — FBD — STI. — SCL — CPC — GRAPH — Yes — HiGraph®  Know-how protection • User program protection/password protection • Block encryption  Weights  Weights  Weights  Weights  Weights  Vesintputs, outputs, nemory bits, DB, times, counters 30 30  14  14  14  14  14  14  14  14  14  1	Number of breakpoints	4
	Status/control	
Number of variables, max.     — of which status variables, max.     — of which status variables, max.     — of which control variables, max.      Forcing	<ul> <li>Status/control variable</li> </ul>	Yes
of which status variables, max of which control variables, max. 14  Forcing  ● Forcing, variables   Inputs, outputs    ● Forcing, variables   Inputs, outputs    ● Number of variables, max. 10  Diagnostic buffer    ● present   Yes    ● Number of entries, max. 500    ■ Number of entries readable in RUN, max. 499    — of which powerfall-proof   100; Only the last 100 entries are retained    ● Number of entries readable in RUN, max. 499    — preset   10  Service data    ● can be read out Yes    Ambient conditions    Ambient conditions    Ambient temperature during operation    ● min. 0 °C    ■ max. 60 °C    Configuration Configuration software    ● STEP 7   Yes; V5.5 or higher    Programming    ● Command set   See instruction list    ■ Nesting levels   8    ■ System functions (SFC)   See instruction list    ■ Nesting levels   8    ■ System function blocks (SFB)   See instruction list    ■ Programming language    — LAD   Yes    — STL	<ul> <li>Variables</li> </ul>	Inputs, outputs, memory bits, DB, times, counters
Forcing Forcing Forcing, variables Forcing Forcing Forcing Forcing Forcing Forcing Forcing, variables Forcin	<ul> <li>Number of variables, max.</li> </ul>	30
Forcing Forcing Forcing Forcing, Serving, variables Forcing, variables Forcing, variables Forcing, variables Forcing, variables, max.  Inputs, outputs Forcing, variables, max.  Inputs, outputs Forcing, variables, max.  Forcing Forcing Forcing Forcing Forcing, variables Forcing, variables Forcing, variables Forcing, variable Forcing, variables Forcin	<ul><li>of which status variables, max.</li></ul>	30
	— of which control variables, max.	14
Forcing, variables Number of variables, max.  Number of variables, max.  Persent  Present  Present  Present  Present  Number of entries, max.  Adjustable  Of which powerfail-proof  Number of entries readable in RUN, max.  Adjustable  Preset  Can be read out  Ambient conditions  Ambient conditions  Ambient temperature during operation  max.  Configuration  Configuration software  STEP 7  Programming  Command set  Nesting levels  System function blocks (SFB)  Programming language  — LAD  — FBD — FBD — FBD — FBD — STL — SCL — CFC — GRAPH — HiGraph®  Know-how protection  — User programs and protection/password protection — User programs  Width Height  Depth  Modity 130 mm  Welghts  Welghts	Forcing	
Number of variables, max.  Diagnostic buffer  present  Number of entries, max.  - adjustable  - of which powerfail-proof  Number of entries readable in RUN, max.  - adjustable  - preset  No  Number of entries readable in RUN, max.  - adjustable  - preset  10  Service data  • can be read out  Ambient conditions  Ambient temperature during operation  • min.  • max.  60 °C  Configuration  Configuration software  • STEP 7 Yes, V5.5 or higher  Programming  • Command set  • Nesting levels  System function k(SFC)  • System function blocks (SFB)  Programming language  - LAD  - FBD  - STL  - SCL  - CFC  - GRAPH - HiGraph®  Know-how protection  • User program protection/password protection  • Block encryption  Dimensions  Width Height  125 mm  Depth  Welghts	<ul><li>Forcing</li></ul>	Yes
Diagnostic buffer  • present  • Number of entries, max. — adjustable — of which powerfall-proof • Number of entries readable in RUN, max. — adjustable — preset  • Number of entries readable in RUN, max. — adjustable — preset  • Can be read out  • Can be read out • Mablent conditions  Ambient temperature during operation • min. • min. • min. • o° C • on "C  Configuration  Configuration software • STEP 7  Programming • Command set • Nesting levels • System functions (SFC) • System function blocks (SFB)  Programming language  — LAD — FBD — FBD — STL — SCL — CFC — GRAPH — HiGraph®  Know-how protection • User program protection/password protection • User programp rotection/password protection • User program protection/password protection • User program	<ul> <li>Forcing, variables</li> </ul>	Inputs, outputs
	<ul> <li>Number of variables, max.</li> </ul>	10
Number of entries, max.	Diagnostic buffer	
adjustable	• present	Yes
- of which powerfail-proof Number of entries readable in RUN, max adjustable - preset 10  Service data • can be read out Ambient conditions  Ambient temperature during operation • min. • max. 60 °C  Configuration  Configuration  Configuration  Configuration  • Step 7 Yes; From 10 to 499  • STEP 7 Yes; From 10 to 499  • max. 60 °C  Configuration  Configuration software • STEP 7 Yes; V5.5 or higher  Programming • Command set • Nesting levels • System functions (SFC) • System function blocks (SFB)  Programming language  - LAD - FBD - Yes - STL - SCL - CFC - GRAPH - HiGraph®  Know-how protection • User program protection/password protection • Block encryption  Dimensions  Width - Height - Depth - Depth - Depth - 130 mm  Weights	<ul> <li>Number of entries, max.</li> </ul>	500
Number of entries readable in RUN, max.     — adjustable     — preset     10  Service data     • can be read out  Ambient conditions  Ambient temperature during operation     • min.     • max.     60 °C  Configuration  Configuration software     • STEP 7     Yes; V5.5 or higher  Programming     • Command set     • Nesting levels     • System functions (SFC)     • System functions (SFC)     • System function blocks (SFB)     Programming language     — LAD	— adjustable	No
adjustable — preset 10  Service data	<ul><li>of which powerfail-proof</li></ul>	100; Only the last 100 entries are retained
adjustable — preset 10  Service data	<ul> <li>Number of entries readable in RUN, max.</li> </ul>	499
Service data	— adjustable	Yes; From 10 to 499
	-	10
Ambient temperature during operation  • min. • max. • max. • 60 °C  Configuration  Configuration  Configuration software  • STEP 7  Programming  • Command set • Nesting levels • System function blocks (SFB) • System function blocks (SFB)  Programming language  — LAD — FBD — STL — SCL — SCL — CFC — GRAPH — HiGraph®  Know-how protection • User program protection/password protection • Block encryption  Dimensions  Weights  0 °C 0 °	Service data	
Ambient temperature during operation  • min. • max. 60 °C  Configuration  Configuration software  • STEP 7  Programming  • Command set • Nesting levels • System functions (SFC) • System function blocks (SFB)  Programming language  — LAD — FBD — STL — SCL — CFC — GRAPH — HiGraph®  Know-how protection • User program protection/password protection • Block encryption  Width Height Depth  Modera  0 °C 60 °C  Command 0 °C 60 °C Command 0 °C 60	• can be read out	Yes
Ambient temperature during operation  • min. • max. 60 °C  Configuration  Configuration software  • STEP 7  Programming  • Command set • Nesting levels • System functions (SFC) • System function blocks (SFB)  Programming language  — LAD — FBD — STL — SCL — CFC — GRAPH — HiGraph®  Know-how protection • User program protection/password protection • Block encryption  • Mich 40 mm  Height Depth  Model  On °C  60 °C  Command  O °C  60 °C  Command  Fest Ves; V5.5 or higher  Programming  See instruction list  see instruction list  Pres  Fest Ves  Fest Ves  Yes  Yes  Fest Ves  Fest Ves  Kinsw-how protection  O Width  40 mm  Height  Depth  130 mm  Weights	Ambient conditions	
		0 °C
Configuration           Configuration software		
● STEP 7         Yes; V5.5 or higher           Programming         see instruction list           ● Command set         see instruction list           ● Nesting levels         8           ● System functions (SFC)         see instruction list           ● System function blocks (SFB)         see instruction list           Programming language         Yes           — LAD         Yes           — FBD         Yes           — STL         Yes           — SCL         Yes           — CFC         Yes           — GRAPH         Yes           — HiGraph®         Yes           Know-how protection         Yes; With S7 block Privacy           • Block encryption         Yes; With S7 block Privacy           Dimensions         Width         40 mm           Height         125 mm           Depth         130 mm           Weights		
Programming  Command set See instruction list System functions (SFC) System function blocks (SFB) Programming language  LAD FBD Yes STL Yes SCL SCL Yes CFC GRAPH HiGraph® Yes  Know-how protection Slock encryption  Width Height Depth Weights  see instruction list Yes yes see instruction list Yes yes yes see instruction list Yes yes yes yes See instruction list Yes Y		Voc. V5.5 or higher
Command set  Nesting levels  System functions (SFC)  System function blocks (SFB)  Programming language  LAD  FBD  STL  SCL  CFC  GRAPH  HiGraph®  Know-how protection  User program protection/password protection  Block encryption  Width  Height  Depth  Nessinstruction list  8  8  8  8  8  8  8  8  8  8  8  8  8		res, vo.5 or nigher
Nesting levels System functions (SFC) see instruction list System function blocks (SFB) see instruction list  Programming language  - LAD - FBD - FBD - STL - SCL - CFC - GRAPH - HiGraph®  Know-how protection User program protection/password protection Block encryption  Ves Width Height Depth  Nes System function list see instruction list yes see instruction list yes see instruction list Yes Wes Shock Privacy  Mund Height 125 mm Depth 130 mm  Weights		age instruction list
System functions (SFC) System function blocks (SFB)  Programming language  — LAD — FBD — FBD — STL — SCL — CFC — GRAPH — HiGraph®  Know-how protection  • Block encryption  Weights  System function blocks (SFB)  see instruction list		
● System function blocks (SFB)  Programming language  — LAD — FBD — FBD — Yes — STL — SCL — CFC — GRAPH — HiGraph®  Know-how protection  ● User program protection/password protection ● Block encryption  Ves Width Height Depth  Dimensions  See instruction list  Yes  Yes  Yes  Yes  Yes  Yes  Yes  Y	_	
Programming language  — LAD — FBD — Yes — STL — SCL — SCL — CFC — GRAPH — HiGraph® Yes  Know-how protection  • User program protection/password protection • Block encryption  Pimensions  Width Height Depth 130 mm  Yes  Yes  Yes  Yes  Yes  Yes  Yes  Y		
— LAD       Yes         — FBD       Yes         — STL       Yes         — SCL       Yes         — CFC       Yes         — GRAPH       Yes         — HiGraph®       Yes         Know-how protection       Yes         • User program protection/password protection       Yes; With S7 block Privacy         Dimensions       Yes; With S7 block Privacy         Width       40 mm         Height       125 mm         Depth       130 mm         Weights		see instruction list
- FBD Yes - STL Yes - SCL Yes - CFC Yes - HiGraph® Yes  Know-how protection  • User program protection/password protection • Block encryption Yes; With S7 block Privacy  Dimensions  Width 40 mm Height 125 mm  Depth 130 mm  Weights		Ver
- STL - SCL - CFC - CFC - GRAPH - HiGraph® Yes  Know-how protection  • User program protection/password protection - Block encryption  Ves; With S7 block Privacy  Dimensions  Width 40 mm Height 125 mm  Depth 130 mm  Weights		
- SCL Yes Yes - GRAPH Yes - HiGraph® Yes		
- CFC - GRAPH - HiGraph® Yes  Know-how protection  ● User program protection/password protection ● Block encryption Yes; With S7 block Privacy  Dimensions  Width 40 mm Height 125 mm Depth 130 mm  Weights		
- GRAPH - HiGraph® Yes  Know-how protection  ■ User program protection/password protection ■ Block encryption  Yes; With S7 block Privacy  Dimensions  Width 40 mm  Height 125 mm  Depth 130 mm  Weights		
— HiGraph®       Yes         Know-how protection       Yes         • User program protection/password protection       Yes         • Block encryption       Yes; With S7 block Privacy         Dimensions       40 mm         Height       125 mm         Depth       130 mm         Weights		
Know-how protection  User program protection/password protection Block encryption Yes; With S7 block Privacy  Dimensions  Width 40 mm  Height 125 mm  Depth 130 mm  Weights		
<ul> <li>User program protection/password protection</li> <li>Block encryption</li> <li>Yes; With S7 block Privacy</li> <li>Dimensions</li> <li>Width</li> <li>Height</li> <li>Depth</li> <li>Multiple</li> <l< td=""><td></td><td>Yes</td></l<></ul>		Yes
● Block encryption  Pimensions  Width 40 mm  Height 125 mm  Depth 130 mm  Weights		
Dimensions           Width         40 mm           Height         125 mm           Depth         130 mm           Weights		
Width         40 mm           Height         125 mm           Depth         130 mm           Weights		Yes; With S7 block Privacy
Height 125 mm  Depth 130 mm  Weights	Dimensions	
Depth 130 mm Weights	Width	40 mm
Weights	Height	125 mm
	Depth	130 mm
	Weights	
	Weight, approx.	340 g
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