SIEMENS

Product data sheet 6ES7317-2FK14-0AB0



SIMATIC S7-300 CPU317F-2 PN/DP, CENTRAL PROCESSING UNIT WITH 1.5 MBYTE WORKING MEMORY,

- 1. INTERFACE MPI/DP 12MBIT/S,
- 2. INTERFACE ETHERNET PROFINET, WITH 2 PORT SWITCH, MICRO MEMORY CARD NECESSARY

General information	
Hardware product version	01
Firmware version	V3.2
Engineering with	
Programming package	STEP 7 V 5.5 or higher, Distributed Safety V 5.4 SP4
Supply voltage	
24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
External protection for supply cables (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 A²·s
Power losses	

Payra lace Am	A OF W
Power loss, typ.	4.65 W
Memory	
Work memory	
integrated	1536 kbyte
expandable	No
Size of retentive memory for retentive data blocks	256 kbyte
Load memory	
pluggable (MMC)	Yes
pluggable (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.	0.025 µs
for word operations, typ.	0.03 µs
for fixed point arithmetic, typ.	0.04 µs
for floating point arithmetic, typ.	0.16 µs
CPU-blocks	
Number of blocks (total)	2048 ; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	
Number, max.	2048 ; Number range: 1 to 16000
Size, max.	64 kbyte
FB	
Number, max.	2048 ; Number range: 0 to 7999
Size, max.	64 kbyte
FC	
Number, max.	2048 ; Number range: 0 to 7999
Size, max.	64 kbyte
ОВ	
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 time 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 (sochronous mode OBs 1, 08.61 - Isackronous mode is possible either on DP or PROFINET IO (not simultaneously) Number of startup OBa 1; 08.100 Number of asynchronous error OBs 6; 08.80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO) Number of synchronous error OBs 2: 08.121, 122 Nesting depth Perfortly class 16 additional within an error OB 4 Counter, timers and their retentivity S7 ocurilor S12 Retentivity adjustable Yos lower limit 0 upper limit 511 present Z 0 to Z 7 Counting range adjustable Yes lower limit 0 upper limit 998 IEC counter present Yes Type SFB Number 512 Retentivity 399 IEC counter present Yes Number 512 Retentivity 399 IEC counter present Yes Number 512 Retentivity 399 Number 514 No retentivity Time range Nower limit 0 upper limit 511 present Yes Type SFB Number 588 Number		
Number of asynchronous error OBs Number of synchronous error OBe Number of synchronous error OBe 2; OB 121, 122 Nesting depth per priority class additional within an error CB 4 Counters, timers and their retentivity S7 counter Number S12 Retentivity adjustable Usewer limit Upper limit Upper limit Upper limit Upper limit 10 Upper limit 10 Upper limit 10 Upper limit 17 Present Yes SFB Number Number S12 Retentivity 4 SFB Number S12 Retentivity adjustable Yes No retentivity Time range Lower limit Upper limit Preset No retentivity Time range Lower limit Upper limit Preset No retentivity Time range Lower limit Upper limit Preset No retentivity Time range Lower limit Upper limit Preset No retentivity Time range Lower limit Upper limit Preset No retentivity Time range Lower limit Upper limit Preset No retentivity Time range Lower limit Upper limit Preset No retentivity Time range Lower limit Upper l	Number isochronous mode OBs	
Number of synchronous error OBs Nesting depth per priority class additional within an error OB Counters, timers and their retentivity S7 counter Number S12 Retentivity adjustable Yes kower limit Uupper lim	Number of startup OBs	1 ; OB 100
Nesting depth per priority clase additional within an error OB 4 Counters, timers and their retentivity S7 counter Number 512 Retentivity adjustable Yes lower limit 0 upper limit 511 preset 2 to 2 7 Counting range adjustable Yes lower limit 0 upper limit 999 IEC counter present 7yos Number Unlimited (limited only by RAM capacity) SFB None remains None remains None remains None remains None remains 10 ms upper limit 17pe 180 SFB None remains None retentivity 1999 septiment 10 ms Upper limit 10 ms Upper li	Number of asynchronous error OBs	6; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO)
per priority class additional within an error OB 4 Counters, timers and their retentivity S7 counter Number Retentivity adjustable lower limit upper limit preset Z 0 to Z 7 Counting range adjustable yes lower limit upper limit present Yes Type Number S12 Yes Unlimited (limited only by RAM capacity) Time range lower limit 10 ms 9990 s ECC timer Present Yes S12 Retentivity 30 ms 40 ms 10 ms 9990 s ECC timer Present Present No retentivity 10 ms 9990 s ECC timer Present Pr	Number of synchronous error OBs	2; OB 121, 122
additional within an error OB Counters, timers and their retentivity \$7 counter Number	Nesting depth	
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upper limit preset		Yes
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 9990 s IEC timer present Yes Type SFB Number S78 No retentivity	lower limit	0
Counting range adjustable Yes lower limit 0 upper limit 999 IEC counter present Yes Type SFB Number Unlimited (limited only by RAM capacity) 87 times Number 512 Retentivity adjustable Yes lower limit 0 upper limit 511 preset No retentivity Time range lower limit 10 ms upper limit 9990 s IEC timer present Yes Type SFB Number Yes Unlimited (limited only by RAM capacity)	upper limit	511
adjustable lower limit logounter present Present Prype SFB Number Unlimited (limited only by RAM capacity) S7 times Number S12 Retentivity adjustable Yes lower limit 0 upper limit preset No retentivity Time range lower limit 10 ms upper limit 10 ms upper limit 9990 s IEC timer present Yes SFB Number Unlimited (limited only by RAM capacity) S7 times S8 SFB Number Unlimited (limited only by RAM capacity)	preset	Z 0 to Z 7
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upper limit SEC counter	adjustable	Yes
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 9990 s IEC timer present Yes Type SFB Number Unlimited (limited only by RAM capacity)	lower limit	0
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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 9990 s IEC timer present Yes Type SFB Number Unlimited (limited only by RAM capacity)	IEC counter	
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Number 512 Retentivity adjustable Yes lower limit 0 upper limit 511 preset No retentivity Time range lower limit 10 ms upper limit 9990 s IEC timer present Yes Type SFB Number Unlimited (limited only by RAM capacity)	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 9990 s IEC timer present Yes Type SFB Number Unlimited (limited only by RAM capacity)	S7 times	
adjustable Ves	Number	512
lower limit upper limit preset No retentivity Time range lower limit upper limit 10 ms upper limit 9990 s IEC timer present Yes Type SFB Number Unlimited (limited only by RAM capacity)	Retentivity	
upper limit preset No retentivity Time range lower limit 10 ms upper limit 9990 s IEC timer present Type SFB Number Unlimited (limited only by RAM capacity)	adjustable	Yes
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Time range lower limit 10 ms upper limit 9990 s IEC timer present Yes Type SFB Number Unlimited (limited only by RAM capacity)	upper limit	511
lower limit 10 ms upper limit 9990 s IEC timer present Yes Type SFB Number Unlimited (limited only by RAM capacity)	preset	No retentivity
upper limit 9990 s IEC timer present Yes Type SFB Number Unlimited (limited only by RAM capacity)	Time range	
present Type Number Yes SFB Unlimited (limited only by RAM capacity)	lower limit	10 ms
present Yes Type SFB Number Unlimited (limited only by RAM capacity)	upper limit	9990 s
Type SFB Number Unlimited (limited only by RAM capacity)	IEC timer	
Number Unlimited (limited only by RAM capacity)	present	Yes
	Туре	SFB
Data areas and their retentivity	Number	Unlimited (limited only by RAM capacity)
	Data areas and their retentivity	

retentive data area, total	All, max. 256 KB
Flag	
Number, max.	4096 byte
Retentivity available	Yes ; MB 0 to MB 4095
Retentivity preset	MB 0 to MB 15
Number of clock memories	8 ; 1 memory byte
Data blocks	
Number, max.	2048 ; Number range: 1 to 16000
Size, max.	64 kbyte
Retentivity adjustable	Yes ; via non-retain property on DB
Retentivity preset	Yes
Local data	
per priority class, max.	32768 byte ; Max. 2048 bytes per block
Address area	
I/O address area	
Inputs	8192 byte
Outputs	8192 byte
of which, distributed	
Inputs	8192 byte
Outputs	8192 byte
Process image	
Inputs	8192 byte
Outputs	8192 byte
Inputs, adjustable	8192 byte
Outputs, adjustable	8192 byte
Inputs, default	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	65536
Outputs	65536
Inputs, of which central	1024
Outputs, of which central	1024
Analog channels	
Inputs	4096
Outputs	4096

Outputs, of which central	256
Hardware configuration	
Racks, max.	4
Modules per rack, max.	8
Expansion devices, max.	3
Number of DP masters	
integrated	1
via CP	4
Number of operable FMs and CPs (recommended)	
FM	8
CP, point-to-point	8
CP, LAN	10
Time of day	
Clock	
Hardware clock (real-time clock)	Yes
battery-backed and synchronizable	Yes
Deviation per day, max.	10 s; Typ.: 2 s
Backup time	6 wk ; At 40 °C ambient temperature
Behavior of the clock following POWER-ON	Clock continues running after POWER OFF
Behavior of the clock following expiry of backup period	Clock continues to run with the time at which the power failure occurred
Behavior of the clock following expiry of backup period Operating hours counter	
Operating hours counter	occurred
Operating hours counter Number	occurred 4
Operating hours counter Number Number/Number range	occurred 4 0 to 3
Operating hours counter Number Number/Number range Range of values	occurred 4 0 to 3 0 to 2^31 hours (when using SFC 101)
Operating hours counter Number Number/Number range Range of values Granularity	occurred 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 hour
Operating hours counter Number Number/Number range Range of values Granularity retentive	occurred 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 hour
Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization	occurred 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart
Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization supported	occurred 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes
Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave to DP, master	occurred 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes Yes
Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave to DP, master to DP, slave	occurred 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes Yes Yes
Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave to DP, master to DP, slave in AS, master	occurred 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes Yes Yes Yes Yes; With DP slave only slave clock
Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave to DP, master to DP, slave in AS, master in AS, slave	occurred 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave to DP, master to DP, slave in AS, master in AS, slave on Ethernet via NTP	occurred 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes Yes Yes Yes Yes Yes Yes; With DP slave only slave clock Yes Yes
Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave to DP, master to DP, slave in AS, master in AS, slave on Ethernet via NTP	occurred 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes Yes Yes Yes Yes Yes Yes; With DP slave only slave clock Yes Yes Yes Yes Yes Yes Yes
Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave to DP, master to DP, slave in AS, master in AS, slave on Ethernet via NTP	occurred 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye

Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
Functionality	
MPI	Yes
DP master	Yes
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
DP master	
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	124
Services	
PG/OP communication	Yes -
Routing	Yes -
Global data communication	No -
S7 basic communication	
	Yes ; I blocks only
S7 communication	Yes
S7 communication, as client	Yes No
S7 communication, as client S7 communication, as server	Yes No Yes
S7 communication, as client S7 communication, as server Equidistance mode support	Yes No Yes Yes
S7 communication, as client S7 communication, as server	Yes No Yes
S7 communication, as client S7 communication, as server Equidistance mode support	Yes No Yes Yes Yes; OB 61; isochronous mode can only be used alternatively on
S7 communication, as client S7 communication, as server Equidistance mode support Isochronous mode	Yes No Yes Yes Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO
S7 communication, as client S7 communication, as server Equidistance mode support Isochronous mode SYNC/FREEZE	Yes No Yes Yes Yes Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO Yes
S7 communication, as client S7 communication, as server Equidistance mode support Isochronous mode SYNC/FREEZE Activation/deactivation of DP slaves Number of DP slaves that can be simultaneously	Yes No Yes Yes Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO Yes Yes
S7 communication, as client S7 communication, as server Equidistance mode support Isochronous mode SYNC/FREEZE Activation/deactivation of DP slaves Number of DP slaves that can be simultaneously activated/deactivated, max.	Yes No Yes Yes Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO Yes Yes
S7 communication, as client S7 communication, as server Equidistance mode support Isochronous mode SYNC/FREEZE Activation/deactivation of DP slaves Number of DP slaves that can be simultaneously activated/deactivated, max. Direct data exchange (slave-to-slave communication)	Yes No Yes Yes Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO Yes Yes Yes Yes

Outputs, max.	8 kbyte
User data per DP slave	
Inputs, max.	244 byte
Outputs, max.	244 byte
DP slave	
Transmission rate, max.	12 Mbit/s
Automatic baud rate search	Yes ; only with passive interface
Address area, max.	32
User data per address area, max.	32 byte
Services	
PG/OP communication	Yes
Routing	Yes ; Only with active interface
Global data communication	No
S7 basic communication	No
S7 communication	Yes
S7 communication, as client	No
S7 communication, as server	Yes ; Connection configured on one side only
Direct data exchange (slave-to-slave communication)	Yes
DPV1	No
Transfer memory	
	244 byte
Transfer memory	244 byte 244 byte
Transfer memory Inputs	
Inputs Outputs	
Transfer memory Inputs Outputs 2nd interface	244 byte
Transfer memory Inputs Outputs 2nd interface Type of interface	244 byte PROFINET
Transfer memory Inputs Outputs 2nd interface Type of interface Physics	PROFINET Ethernet RJ45
Transfer memory Inputs Outputs 2nd interface Type of interface Physics Isolated	244 byte PROFINET Ethernet RJ45 Yes
Transfer memory Inputs Outputs 2nd interface Type of interface Physics Isolated Integrated switch	244 byte PROFINET Ethernet RJ45 Yes Yes
Inputs Outputs 2nd interface Type of interface Physics Isolated Integrated switch Number of ports Automatic detection of transmission speed Autonegotiation	244 byte PROFINET Ethernet RJ45 Yes Yes 2
Inputs Outputs 2nd interface Type of interface Physics Isolated Integrated switch Number of ports Automatic detection of transmission speed Autorossing	244 byte PROFINET Ethernet RJ45 Yes Yes 2 Yes; 10/100 Mbit/s Yes Yes
Inputs Outputs 2nd interface Type of interface Physics Isolated Integrated switch Number of ports Automatic detection of transmission speed Autonegotiation Autocrossing Change of IP address at runtime, supported	244 byte PROFINET Ethernet RJ45 Yes Yes 2 Yes; 10/100 Mbit/s Yes
Inputs Outputs 2nd interface Type of interface Physics Isolated Integrated switch Number of ports Automatic detection of transmission speed Autonegotiation Autocrossing Change of IP address at runtime, supported Media redundancy	244 byte PROFINET Ethernet RJ45 Yes Yes 2 Yes; 10/100 Mbit/s Yes Yes Yes Yes
Inputs Outputs 2nd interface Type of interface Physics Isolated Integrated switch Number of ports Automatic detection of transmission speed Autonegotiation Autocrossing Change of IP address at runtime, supported Media redundancy supported	244 byte PROFINET Ethernet RJ45 Yes Yes 2 Yes; 10/100 Mbit/s Yes Yes Yes Yes
Inputs Outputs 2nd interface Type of interface Physics Isolated Integrated switch Number of ports Automatic detection of transmission speed Autonegotiation Autocrossing Change of IP address at runtime, supported Media redundancy supported Switchover time on line break, typically	244 byte PROFINET Ethernet RJ45 Yes Yes 2 Yes; 10/100 Mbit/s Yes Yes Yes Yes Yes Yes Yes Y
Inputs Outputs 2nd interface Type of interface Physics Isolated Integrated switch Number of ports Automatic detection of transmission speed Autonegotiation Autocrossing Change of IP address at runtime, supported Media redundancy supported Switchover time on line break, typically Number of stations in the ring, max.	244 byte PROFINET Ethernet RJ45 Yes Yes 2 Yes; 10/100 Mbit/s Yes Yes Yes Yes
Inputs Outputs 2nd interface Type of interface Physics Isolated Integrated switch Number of ports Automatic detection of transmission speed Autonegotiation Autocrossing Change of IP address at runtime, supported Media redundancy supported Switchover time on line break, typically	244 byte PROFINET Ethernet RJ45 Yes Yes 2 Yes; 10/100 Mbit/s Yes Yes Yes Yes Yes Yes Yes Y

DP slave DP slave No PROFINET IO Controller PROFINET OB Device PROFINET OB Yes; Also simultaneously with IO Controller functionality PROFINET OB TEXT OF THE PROFINET TO OP PROFINET OB TEXT OF THE PROFINET TO OP PROFINET		
PROFINET IO Controller PROFINET CSA Yes PROFINET CSA Yes Open IE communication Yes; Also simultaneously with IO Controller functionality PROFINET CSA Yes Ves Ves PROFINET CSA Yes Ves Ves Number of HTTP clients 5 PROFINET IO Controller Transmission rate, max. Number of connectable IO devices, max. Number of connectable IO devices for RT of which in line, max. Number of IO devices with IRT and the option "high flexibility" of which in line, max. Number of IO Devices with IRT and the option "high performance", max. of which in line, max. IRT, supported Yes Shared device, supported Yes Prioritized startup supported Yes Maximum number of IO Devices, max. Activation/deactivation of IO Devices Max number of IO Devices, max. 22 Activation/deactivation of IO Devices Max number of IO devices per tool Devices changing during operation (partner ports), supported Max number of IO devices per tool Perioritized startup swap medium Yes Send cycles Send cycles Services PG/OP communication Yes South loadable FBs, max. configurable connections: 16, max. number of instances: 32 Services PG/OP communication Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 Isochronous mode Ves; OB 81: Sachronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO	DP master	No
PROFINET IO Device PROFINET CBA Yes Open IE communication Yes : Via TCP/IP, ISO on TCP, and UDP Web server Yes Number of HTTP clients 5 PROFINET IO Controller Transmission rate, max. 100 Mbt//s Number of connectable IO devices, max. 128 Max. number of connectable IO devices, max. 128 Number of IO devices with IRT and the option "high flexibility" of which in line, max. 128 Number of IO Devices with IRT and the option "high performance", max. 0f which in line, max. 178 Shared device, supported Prioritized startup supported Yes Shared device, supported Yes Maximum number of IO Devices that can be activated disease that can be activated disease that same time. 10 Devices changing during operation (partner ports), supported Max. number of IO devices per tool Bending ime 250 µs, 500 µs, 1 ms, 2 ms, 4 ms (not in the case of IRT with "high fexibility" option) Updating time 250 µs to 512 ms (depending on the operating mode, see Manual "97-300 CPU 31xC and CPU 31x. Technical Data" for more details) Services PCI/OP communication Yes 180 Cooking Yes	DP slave	No
PROFINET CBA Open IE communication Yes: Via TCP/IP, ISO on TCP, and UDP Web server Number of HTTP clients 5 PROFINET IO Controller Transmission rate, max. Number of connectable IO devices, max. 128 Max. number of connectable IO devices for RT of which in line, max. Number of IO devices with IRT and the option high flexibility* of which in line, max. Number of IO Devices with IRT and the option high performance, max. of which in line, max. IRT, supported Yes Shared device, supported Yes Number of IO Devices wax. Activation/deactivation of IO Devices Maximum number of IO devices that can be activated/deactivated at the same time. IO Devices changing during operation (partner porte), supported Max. number of IO devices per tool Boevice replacement without swap medium Send cycles PROFIDE SOD Up S12 ms (depending on the operating mode, see Manual "57-300 CPU 31x. Technical Data" for more details) Services PROFIDE SD OP PROFINET IO PROFIBUS DP or PROFINET IO PROFIBUS DP or PROFINET IO	PROFINET IO Controller	Yes ; Also simultaneously with IO-Device functionality
Open IE communication Yes : Via TCP/IP, ISO on TCP, and UDP Web server Number of HTTP clients 5 PROFINET IO Controller Transmission rate, max. 100 Mbit/s Max. number of connectable IO devices, max. 128 Max. number of connectable IO devices for RT of which in line, max. Number of IO devices with IRT and the option "high flexibility" of which in line, max. of which in line, m	PROFINET IO Device	Yes ; Also simultaneously with IO Controller functionality
Number of HTTP clients 5	PROFINET CBA	Yes
Number of HTTP clients PROFINET IO Controller Transmission rate, max. Number of connectable IO devices, max. 128 Max. number of connectable IO devices for RT 128 of which in line, max. Number of IO devices with IRT and the option "high flexibility" 128 of which in line, max. Number of IO Devices with IRT and the option "high performance", max. of which in line, max. of the control in line, max. of which in line, max. of which in line, max. of which in line, max. of the control	Open IE communication	Yes ; Via TCP/IP, ISO on TCP, and UDP
PROFINET IO Controller Transmission rate, max. 100 Mbit/s Number of connectable IO devices, max. 128 Max. number of connectable IO devices for RT 128 of which in line, max. 128 Number of IO devices with IRT and the option "high flexibility" 128 of which in line, max. 61 Number of IO Devices with IRT and the option "high performance", max. 64 IRT, supported Yes Shared device, supported Yes Shared device, supported Yes Number of IO Devices, max. 32 Activation/deactivation of IO Devices Maximum number of IO devices that can be activated/deactivated at the same time. 8 IO Devices changing during operation (pertner ports), supported Max. number of IO devices per tool 8 Device replacement without swap medium Yes Send cyclee 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 "57-300 CPU 31xC and CPU 31x, Technical Data" for more details) Services PG/OP communication Yes S7 communication 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	Web server	Yes
Transmission rate, max. Number of connectable IO devices, max. 128 Max. number of connectable IO devices for RT of which in line, max. Number of IO devices with IRT and the option "high flexibility" of which in line, max. 128 Number of IO Devices with IRT and the option "high performance", max. of which in line, max. 64 IRT, supported Yes Shared device, supported Prioritized starfup supported Prioritized starfup supported Yes Number of IO Devices, max. 32 Activation/deactivation of IO Devices Maximum number of IO devices that can be activated/deactivated at the same time. IO Devices changing during operation (partner ports), supported Max. number of IO devices per tool Bedicated that the same time. Ves 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) Services PG/OP communication Yes S7 communication Yes S7 communication Yes S8 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO	Number of HTTP clients	5
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"S7-300 CPU 31xC and CPU 31x, Technical Data" for more details) Services PG/OP communication Yes Routing Yes S7 communication Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 Isochronous mode Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO	Send cycles	• • • • • • • • • • • • • • • • • • • •
PG/OP communication Routing Yes S7 communication Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 Isochronous mode Yes Yes Yes Yes Yes Yes Yes Y	Updating time	· · · · · · · · · · · · · · · · · · ·
Routing Yes 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	Services	
S7 communication Yes ; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 Isochronous mode Yes ; With loadable FBs, max. configurable connections: 16, max. number of instances: 32 Yes ; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO	PG/OP communication	Yes
number of instances: 32 Isochronous mode Yes ; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO	Routing	Yes
PROFIBUS DP or PROFINET IO	S7 communication	
Open IE communication Yes ; Via TCP/IP, ISO on TCP, and UDP	Isochronous mode	
	Open IE communication	Yes ; Via TCP/IP, ISO on TCP, and UDP

Address area	
Inputs, max.	8 kbyte
Outputs, max.	8 kbyte
User data consistency, max.	1024 byte
PROFINET 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
Open IE communication	Yes ; Via TCP/IP, ISO on TCP, and UDP
IRT, supported	Yes
PROFlenergy, supported	Yes ; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device
Shared device, supported	Yes
Number of IO controllers with shared device, max.	2
Transfer memory	
Inputs, max.	1440 byte ; Per IO Controller with shared device
Outputs, max.	1440 byte ; Per IO Controller with shared device
Submodules	
Number, max.	64
User data per submodule, max.	1024 byte
PROFINET CBA	
acyclic transmission	Yes
Cyclic transmission	Yes
Open IE communication	
Open IE communication, supported	Yes
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
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	Yes ; Via PROFIBUS DP or PROFINET interface
Communication functions	
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
Open IE communication	
TCP/IP	Yes ; via integrated PROFINET interface and loadable FBs
Number of connections, max.	16
Data length for connection type 01H, max.	1460 byte
Data length for connection type 11H, max.	32768 byte
Several passive connections per port, supported	Yes
ISO-on-TCP (RFC1006)	Yes ; via integrated PROFINET interface and loadable FBs
Number of connections, max.	16
Data length, max.	32768 byte
UDP	Yes ; via integrated PROFINET interface and loadable FBs
Number of connections, max.	16
Data length, max.	1472 byte
Web server	
supported	Yes
Number of HTTP clients	5
User-defined websites	Yes
PROFINET CBA (at set setpoint communication load)	
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	1000
Data length of all incoming connections master/slave, max.	4000 byte
Data length of all outgoing connections master/slave, max.	4000 byte
Number of device-internal and PROFIBUS interconnections	500
Data length of device-internal und PROFIBUS interconnections, max.	4000 byte
Data length per connection, max.	1400 byte
Remote interconnections with acyclic transmission	
Sampling frequency: Sampling time, min.	500 ms
Number of incoming interconnections	100
Number of outgoing interconnections	100
Data length of all incoming interconnections, max.	2000 byte
Data length of all outgoing interconnections, max.	2000 byte
Data length per connection, max.	1400 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, max.	2000 byte
Data length of all outgoing interconnections, max.	2000 byte
Data length per connection, max.	450 byte
HMI variables via PROFINET (acyclic)	
Number of stations that can log on for HMI variables (PN OPC/iMap)	3 ; 2x PN OPC/1x iMap
HMI variable updating	500 ms
Number of HMI variables	200
Data length of all HMI variables, max.	2000 byte
PROFIBUS proxy functionality	
supported	Yes
Number of linked PROFIBUS devices	16
Data length per connection, max.	240 byte ; Slave-dependent
Number of connections	
overall	32
usable for PG communication	31
reserved for PG communication	1
Adjustable for PG communication, min.	1
Adjustable for PG communication, max.	31
usable for OP communication	31
reserved for OP communication	1

adjustable for OP communication, min.	1
adjustable for OP communication, max.	31
usable for S7 basic communication	30
Reserved for S7 basic communication	0
adjustable for S7 basic communication, min.	0
adjustable for S7 basic communication, max.	30
usable for S7 communication	16
reserved for S7 communication	0
Adjustable for S7 communication, min.	0
Adjustable for S7 communication, max.	16
Max. total number of instances	32
usable for routing	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.
S7 message functions	
Number of login stations for message functions, max.	32 ; Depending on the configured connections for PG/OP and S7 basic communication
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	300
Test commissioning functions	
Status block	Yes; Up to 2 simultaneously
Single step	Yes
Number of breakpoints	4
Status/control	
Status/control variable	Yes
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
Force, variables	Inputs, outputs
Number of variables, max.	10
Diagnostic buffer	
present	Yes
Number of entries, max.	500
adjustable	No
Of which powerfail-proof	100 ; Only the last 100 entries are retained
Number of entries readable in RUN, max.	499
adjustable	Yes ; From 10 to 499

preset	10
Service data	
Can be read out	Yes
Ambient conditions	
Operating temperature	
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
Programming language	
LAD	Yes
FBD	Yes
STL	Yes
SCL	Yes
CFC	Yes
GRAPH	Yes
HiGraph®	Yes
Software libraries	
System functions (SFC)	see instruction list
System function blocks (SFB)	see instruction list
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
Weight	
Weight, approx.	340 g
Status	Feb 25, 2013