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 A ² ·s
Power losses	
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	10 a
programming), min.	
Backup	
present	Yes ; Guaranteed by MMC (maintenance-free)
without battery	Yes ; Guaranteed by MMC (maintenance-free) Yes ; Program and data
· · · · · · · · · · · · · · · · · · ·	
without battery	
without battery CPU processing times	Yes ; Program and data
without battery CPU processing times for bit operations, min.	Yes ; Program and data 0.025 μs
without battery CPU processing times for bit operations, min. for word operations, min.	Yes ; Program and data 0.025 μs 0.03 μs
without battery CPU processing times for bit operations, min. for word operations, min. for fixed point arithmetic, min.	Yes ; Program and data 0.025 μs 0.03 μs 0.04 μs
without battery CPU processing times for bit operations, min. for word operations, min. for fixed point arithmetic, min. for floating point arithmetic, min.	Yes ; Program and data 0.025 μs 0.03 μs 0.04 μs
without battery CPU processing times for bit operations, min. for word operations, min. for fixed point arithmetic, min. for floating point arithmetic, min. CPU-blocks	Yes; Program and data 0.025 µs 0.03 µs 0.04 µs 0.16 µs 2048; (DBs, FCs, FBs); the maximum number of
without battery CPU processing times for bit operations, min. for word operations, min. for fixed point arithmetic, min. for floating point arithmetic, min. CPU-blocks Number of blocks (total)	Yes; Program and data 0.025 µs 0.03 µs 0.04 µs 0.16 µs 2048; (DBs, FCs, FBs); the maximum number of
without battery CPU processing times for bit operations, min. for word operations, min. for fixed point arithmetic, min. for floating point arithmetic, min. CPU-blocks Number of blocks (total)	Yes; Program and data 0.025 µs 0.03 µs 0.04 µs 0.16 µs 2048; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
without battery CPU processing times for bit operations, min. for word operations, min. for fixed point arithmetic, min. for floating point arithmetic, min. CPU-blocks Number of blocks (total) DB Number, max.	Yes; Program and data 0.025 μs 0.03 μs 0.04 μs 0.16 μs 2048; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
without battery CPU processing times for bit operations, min. for word operations, min. for fixed point arithmetic, min. for floating point arithmetic, min. CPU-blocks Number of blocks (total) DB Number, max. Size, max.	Yes; Program and data 0.025 μs 0.03 μs 0.04 μs 0.16 μs 2048; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
without battery CPU processing times for bit operations, min. for word operations, min. for fixed point arithmetic, min. for floating point arithmetic, min. CPU-blocks Number of blocks (total) DB Number, max. Size, max. FB	Yes; Program and data 0.025 µs 0.03 µs 0.04 µs 0.16 µs 2048; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used. 2048; Number range: 1 to 16000 64 kbyte
without battery CPU processing times for bit operations, min. for word operations, min. for fixed point arithmetic, min. for floating point arithmetic, min. CPU-blocks Number of blocks (total) DB Number, max. Size, max. FB Number, max.	Yes; Program and data 0.025 µs 0.03 µs 0.04 µs 0.16 µs 2048; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used. 2048; Number range: 1 to 16000 64 kbyte 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 isochronous mode OBs	1 ; OB 61 - isochronous mode is possible either on DP or PROFINET IO (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	
per priority class	16
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	Z 0 to Z 7
Counting range	
adjustable	Yes
lower limit	0
upper limit	999
IEC counter	
present	Yes
Туре	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
Туре	SFB
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	0192 byte
Inputs	8192 byte
Outputs	8192 byte
Inputs, adjustable	8192 byte
Outputs, adjustable	8192 byte
Inputs, default	256 byte
Outputs, default	256 byte
	250 byte
Subprocess images	4 : With DDOCINET IO the length of the year date is
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
Inputs, of which central	256
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
Configuration / Number of FMs and CPs that can be o	operated (recommendation)
FM	8
CP, point-to-point	8
CP, LAN	10

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
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 hour
retentive	Yes ; Must be restarted at each restart
Clock synchronization	
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
1st interface	
Type of interface	Integrated RS 485 interface
Physics	RS 485
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	

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
Transmission rate, max.	12 Mbit/s
DP master	
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 mode support	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 slaves	Yes
Number of DP slaves that can be simultaneously activated/deactivated, max.	8
Direct data exchange (slave-to-slave communication)	Yes ; As subscriber
DPV1	Yes
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	124
Address area	
Inputs, max.	8 kbyte
Outputs, max.	8 kbyte
User data per DP slave	

Outputs, max. PG slave Services PG/OP communication Yes Routing Yes; Only with active interface Global data communication No S7 basic communication Yes S7 communication Yes S7 communication, as client No S7 communication, as server Yes; Connection configured on one side only Direct data exchange (slave-to-slave communication) DPV1 No Transmission rate, max. 12 Mbit/s Automatic baud rate search Yes; only with passive interface Transfer memory Inputs 244 byte Outputs 244 byte Address area, max. 32 User data per address area, max. 32 User data per address area, max. 32 2nd interface Physics Ethernet RJ45 Integrated switch Yes Integrated switch Yes Number of ports 2 Automatic detection of transmission speed Yes; 10/100 Mbit/s Autorossing Yes Media redundancy supported Yes Switchover time on line break, typically Number of stations in the ring, max. 50	Inputs, max.	244 byte
PG/OP communication PG/OP communication PG/OP communication 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 Pirect data exchange (slave-to-slave communication) DPV1 No Transmission rate, max. 12 Mbit/s Automatic baud rate search Yes; only with passive interface Transfer memory Inputs Qutputs Address area, max. User data per address area, max. 32 User data per address area, max. 32 byte 2nd interface Physics Ethernet RJ45 Isolated Integrated switch Number of ports Automatic detection of transmission speed Autoressing Yes Media redundancy supported Switchover time on line break, typically Solated Switchover time on line break, typically Special Communication No No Yes; Only with active interface Yes; Only with active interface No No S7 communication No No No S7 communication No No S8 connection configured on one side only Yes Connection configured No S9 connection configured No No S9 connection configured on one side only Yes Solated on side only Yes Solated Yes; Only with active interface Pes; Only with active interface Yes; Only with active interface Pesson Yes Automatic detection of transmission speed Yes; 10/100 Mbit/s Yes Switchover time on line break, typically Switchover time on line break, typically	Outputs, max.	244 byte
Routing Yes; Only with active interface Global data communication No S7 basic communication Yes S7 communication Yes S7 communication, as client No S7 communication, as server Yes; Connection configured on one side only Direct data exchange (slave-to-slave communication) DPV1 No Transmission rate, max. 12 Mbit/s Automatic baud rate search Yes; only with passive interface Transfer memory Inputs 244 byte Outputs 244 byte Address area, max. 32 User data per address area, max. 32 byte Znd interface Type of interface PROFINET Physics Ethernet RJ45 Isolated Yes Integrated switch Yes Automatic detection of transmission speed Yes; 10/100 Mbit/s Autonegotiation Yes Media redundancy supported Switchover time on line break, typically Switchover time on line break, typically Ses Switchover time on line break, typically Ses Switchover time on line break, typically Ses	DP slave	
Routing Yes; Only with active interface Global data communication No S7 basic communication Yes S7 communication, as client No S7 communication, as server Yes; Connection configured on one side only Direct data exchange (slave-to-slave communication) DPV1 No Transmission rate, max. 12 Mbit/s Automatic baud rate search Yes; only with passive interface Transfer memory Inputs 244 byte Outputs 244 byte Outputs 244 byte Address area, max. 32 User data per address area, max. 32 byte 2nd interface Type of interface PROFINET Physics Ethernet RJ45 Isolated Yes Integrated switch Yes Number of ports 2 Automatic detection of transmission speed Yes; 10/100 Mbit/s Autorossing Yes Media redundancy supported Yes Switchover time on line break, typically Solated Yes Switchover time on line break, typically Solated Yes Switchover time on line break, typically Solated Yes Switchover time on line break, typically	Services	
Global data communication S7 basic communication S7 communication S7 communication S7 communication, as client No S7 communication, as server Yes; Connection configured on one side only Poirect data exchange (slave-to-slave communication) DPV1 Transmission rate, max. Automatic baud rate search Transfer memory Inputs Outputs Address area, max. User data per address area, max. 244 byte 244 byte 244 byte 245 byte PROFINET Physics Ethernet RJ45 Isolated Yes; 10/100 Mbit/s Yes; 10/100 Mbit/s Yes Mumber of ports Automatic detection of transmission speed Autorossing Yes Media redundancy supported Switchover time on line break, typically Service of communication Yes Yes Yes Switchover time on line break, typically Yes Yes Sone of memory Yes Yes Yes Switchover time on line break, typically Yes Switchover time on line break, typically Yes Yes Yes Yes Yes Yes Yes Ye	PG/OP communication	Yes
S7 basic communication S7 communication Yes S7 communication, as client No S7 communication, as server Yes; Connection configured on one side only Direct data exchange (slave-to-slave communication) DPV1 No Transmission rate, max. 12 Mbit/s Automatic baud rate search Yes; only with passive interface Transfer memory Inputs Outputs Address area, max. 32 User data per address area, max. 32 User data per address area, max. 244 byte Type of interface Physics Ethernet RJ45 Isolated Yes Integrated switch Yes Number of ports Automatic detection of transmission speed Autorossing Yes Media redundancy supported Switchover time on line break, typically Ses Connection configured on one side only Yes Connection confi	Routing	Yes ; Only with active interface
S7 communication S7 communication, as client No S7 communication, as server Ves ; Connection configured on one side only Direct data exchange (slave-to-slave communication) DPV1 No Transmission rate, max. 12 Mbit/s Automatic baud rate search Ves ; only with passive interface Transfer memory Inputs Outputs Address area, max. User data per address area, max. 244 byte Address area, max. User data per address area, max. 27 ye of interface PROFINET Physics Ethernet RJ45 Isolated Integrated switch Ves Number of ports Automatic detection of transmission speed Autoressing Autoressing Yes Media redundancy supported Switchover time on line break, typically Yes Connection configured on one side only Yes ; Connection configured only Yes ; Connection configured on one side only Yes ;	Global data communication	No
S7 communication, as client S7 communication, as server S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 No Transmission rate, max. Automatic baud rate search Transfer memory Inputs Outputs Address area, max. User data per address area, max. 244 byte Address area, max. User of interface Type of interface PROFINET Physics Integrated switch Number of ports Automatic detection of transmission speed Autoressing Autoressing Yes Media redundancy supported Switchover time on line break, typically Yes Connection configured on one side only Yes Yes PROFINET President Autoressing Yes Yes PROFINET President Autoressing Yes Yes PROFINET Yes Media redundancy Switchover time on line break, typically Yes 200 ms; PROFINET MRP	S7 basic communication	No
S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 No Transmission rate, max. Automatic baud rate search Transfer memory Inputs Outputs Address area, max. User data per address area, max. 244 byte Address area, max. 25 byte Type of interface Type of interface PROFINET Physics Integrated switch Number of ports Automatic detection of transmission speed Automatic detection of transmission speed Autocrossing Media redundancy supported Switchover time on line break, typically Yes Van Yes Van Yes Yes Yes Yes Yes Yes Yes Ye	S7 communication	Yes
Direct data exchange (slave-to-slave communication) DPV1 No Transmission rate, max. 12 Mbit/s Automatic baud rate search Yes; only with passive interface Transfer memory Inputs 244 byte Outputs 244 byte Address area, max. 32 User data per address area, max. 32 byte Type of interface Type of interface PROFINET Physics Ethernet RJ45 Isolated Yes Integrated switch Yes Number of ports 2 Automatic detection of transmission speed Yes; 10/100 Mbit/s Autorossing Yes Media redundancy supported Yes Switchover time on line break, typically PNO 12 Mbit/s Yes Yes Yes Switchover time on line break, typically PROFINET Wes Yes Yes Yes PROFINET 20/100 Mbit/s Yes PROFINET Yes PROFINET Yes PROFINET Yes PROFINET Yes PROFINET Wes PROFINET Wes PROFINET MRP	S7 communication, as client	No
communication) DPV1 No Transmission rate, max. 12 Mbit/s Automatic baud rate search Yes; only with passive interface Transfer memory Inputs 244 byte Outputs 244 byte Address area, max. 32 User data per address area, max. 32 byte 2nd interface Type of interface PROFINET Physics Ethernet RJ45 Isolated Yes Integrated switch Yes Number of ports 2 Automatic detection of transmission speed Yes; 10/100 Mbit/s Autorossing Yes Media redundancy supported Yes Switchover time on line break, typically 21 Mbit/s Yes 12 Mbit/s Yes 13 Mbit/s Yes 14 Mbit/s Yes 15 Mbit/s Yes 16 Mbit/s Yes Yes Yes Yes Yes Yes PROFINET MRP	S7 communication, as server	Yes ; Connection configured on one side only
Transmission rate, max. Automatic baud rate search Transfer memory Inputs Outputs Address area, max. User data per address area, max. 22d byte 2nd interface Type of interface PROFINET Physics Ethernet RJ45 Isolated Yes Integrated switch Yes Automatic detection of transmission speed Automagotiation Autocrossing Media redundancy supported Switchover time on line break, typically Yes; only with passive interface 12d byte 24d byte 24d byte 24d byte 24d byte PROFINET Yes 12d avide passive interface 12d a		Yes
Automatic baud rate search Transfer memory Inputs Outputs Address area, max. User data per address area, max. 2nd interface Type of interface PROFINET Physics Ethernet RJ45 Isolated Integrated switch Yes Number of ports Automatic detection of transmission speed Autocrossing Media redundancy supported Switchover time on line break, typically Yes 244 byte 244 byte 244 byte 244 byte 247 248 249 PROFINET PROFINET PROFINET 2 2 4 4 4 5 7 6 7 7 8 7 8 7 8 7 8 8	DPV1	No
Inputs 244 byte Outputs 244 byte Address area, max. 32 User data per address area, max. 32 byte 2nd interface Type of interface PROFINET Physics Ethernet RJ45 Isolated Yes Integrated switch Yes Number of ports 2 Automatic detection of transmission speed Yes; 10/100 Mbit/s Autorossing Yes Media redundancy supported Yes Switchover time on line break, typically 200 ms; PROFINET MRP	Transmission rate, max.	12 Mbit/s
Inputs Outputs 244 byte Address area, max. 32 User data per address area, max. 32 byte 2nd interface Type of interface Physics Ethernet RJ45 Isolated Integrated switch Yes Integrated switch Ves Automatic detection of transmission speed Autocrossing Yes Media redundancy supported Switchover time on line break, typically 244 byte 244 byte 244 byte 244 byte 244 byte 242 Byte 32 Automatic detection of transmission 245 FROFINET 24 FROFINET 25 FROFINET MRP	Automatic baud rate search	Yes ; only with passive interface
Outputs Address area, max. User data per address area, max. 2nd interface Type of interface PROFINET Physics Ethernet RJ45 Isolated Yes Integrated switch Yes Number of ports Automatic detection of transmission speed Autocrossing Yes Media redundancy supported Switchover time on line break, typically 244 byte 242 32 442 444 454 457 42 42 445 446 446 447 447 447 447 447	Transfer memory	
Address area, max. User data per address area, max. 2nd interface Type of interface PROFINET Physics Ethernet RJ45 Isolated Yes Integrated switch Number of ports Automatic detection of transmission speed Autorossing Autocrossing Media redundancy supported Switchover time on line break, typically 32 Automatic data per address area, max. 32 32 32 32 32 byte PROFINET PROFINET MRP	Inputs	244 byte
User data per address area, max. 2nd interface Type of interface PROFINET Physics Ethernet RJ45 Isolated Yes Integrated switch Yes Number of ports 2 Automatic detection of transmission speed Yes; 10/100 Mbit/s Autorossing Yes Media redundancy supported Yes Switchover time on line break, typically 32 byte PROFINET PROFINET MRP	Outputs	244 byte
Type of interface PROFINET Physics Ethernet RJ45 Isolated Yes Integrated switch Yes Number of ports 2 Automatic detection of transmission speed Yes; 10/100 Mbit/s Autoregotiation Yes Autocrossing Yes Media redundancy supported Yes Switchover time on line break, typically PROFINET MRP	Address area, max.	32
Type of interface PROFINET Physics Ethernet RJ45 Isolated Yes Integrated switch Yes Number of ports 2 Automatic detection of transmission speed Yes; 10/100 Mbit/s Autonegotiation Yes Autocrossing Yes Media redundancy supported Yes Switchover time on line break, typically 200 ms; PROFINET MRP	User data per address area, max.	32 byte
Physics Ethernet RJ45 Isolated Yes Integrated switch Yes Number of ports 2 Automatic detection of transmission speed Yes; 10/100 Mbit/s Autonegotiation Yes Autocrossing Yes Media redundancy supported Yes Switchover time on line break, typically Ethernet RJ45 Yes 2 Yes 2 Automatic RJ45 Yes 2 2 Automatic detection of transmission speed Yes; 10/100 Mbit/s Yes Autocrossing Yes Media redundancy Supported Yes Switchover time on line break, typically 200 ms; PROFINET MRP	2nd interface	
Isolated Integrated switch Yes Number of ports Automatic detection of transmission speed Autonegotiation Yes Autocrossing Yes Media redundancy supported Switchover time on line break, typically Yes Yes Yes Yes Yes Yes Yes Ye	Type of interface	PROFINET
Integrated switch Number of ports 2 Automatic detection of transmission speed Autonegotiation Autocrossing Yes Media redundancy supported Switchover time on line break, typically Yes Yes Yes 2 Yes; 10/100 Mbit/s Yes Yes Yes 2 2 200 ms; PROFINET MRP	Physics	Ethernet RJ45
Number of ports Automatic detection of transmission speed Yes; 10/100 Mbit/s Autonegotiation Yes Autocrossing Yes Media redundancy supported Yes Switchover time on line break, typically 2 Yes; 10/100 Mbit/s Yes Yes Yes Yes Yes Yes Yes Y	Isolated	Yes
Automatic detection of transmission speed Autonegotiation Autocrossing Media redundancy supported Switchover time on line break, typically Yes; 10/100 Mbit/s Yes Yes Yes Yes Yes Yes Yes Y	Integrated switch	Yes
Autonegotiation Autocrossing Yes Media redundancy supported Switchover time on line break, typically Yes Yes 200 ms; PROFINET MRP	Number of ports	2
Autocrossing Media redundancy supported Switchover time on line break, typically Yes 200 ms; PROFINET MRP	Automatic detection of transmission speed	Yes ; 10/100 Mbit/s
Media redundancy supported Yes Switchover time on line break, typically 200 ms; PROFINET MRP	Autonegotiation	Yes
supported Yes Switchover time on line break, typically 200 ms; PROFINET MRP	Autocrossing	Yes
Switchover time on line break, typically 200 ms ; PROFINET MRP	Media redundancy	
	supported	Yes
Number of stations in the ring, max. 50	Switchover time on line break, typically	200 ms ; PROFINET MRP
	Number of stations in the ring, max.	50

Change of IP address at runtime, supported	Yes
Functionality	
MPI	No
DP master	No
DP slave	No
PROFINET IO Controller	Yes ; Also simultaneously with IO-Device functionality
PROFINET IO Device	Yes ; Also simultaneously with IO Controller functionality
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	
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
Open IE communication	Yes ; Via TCP/IP, ISO on TCP, and UDP
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
of which in line, max.	64
IRT, supported	Yes
Shared device, supported	Yes
Prioritized startup supported	Yes
Number of IO Devices, max.	32

Activation/deactivation of IO Devices	Yes
Maximum number of IO devices that can be activated/deactivated at the same time.	8
IO Devices changing during operation (partner ports), supported	Yes
Max. number of IO devices per tool	8
Device replacement without swap medium	Yes
Send cycles	250 μ s, 500 μ s,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 per address area, max.	
User data consistency, max.	1024 byte
ROFINET IO Device	
Services	
OCI VICES	
PG/OP communication	Yes
	Yes Yes
PG/OP communication	
PG/OP communication Routing	Yes : with loadable FBs, max. configurable
PG/OP communication Routing S7 communication	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32
PG/OP communication Routing S7 communication Isochronous mode	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No
PG/OP communication Routing S7 communication Isochronous mode Open IE communication	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes; Via TCP/IP, ISO on TCP, and UDP
PG/OP communication Routing S7 communication Isochronous mode Open IE communication IRT, supported	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes; Via TCP/IP, ISO on TCP, and UDP Yes Yes; With SFB 73 / 74 prepared for loadable
PG/OP communication Routing S7 communication Isochronous mode Open IE communication IRT, supported PROFlenergy, supported	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes; Via TCP/IP, ISO on TCP, and UDP Yes Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device
PG/OP communication Routing S7 communication Isochronous mode Open IE communication IRT, supported PROFlenergy, supported Shared device, supported Number of IO controllers with shared device,	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes; Via TCP/IP, ISO on TCP, and UDP Yes Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Yes
PG/OP communication Routing S7 communication Isochronous mode Open IE communication IRT, supported PROFlenergy, supported Shared device, supported Number of IO controllers with shared device, max.	Yes Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 No Yes; Via TCP/IP, ISO on TCP, and UDP Yes Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device Yes

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	4000 byte
master/slave, max.	

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

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.
usable for routing S7 message functions	
S7 message functions Number of login stations for message functions,	DP slave (active): max. 14; X2 as PROFINET: 24 max. 32; Depending on the configured connections for
S7 message functions Number of login stations for message functions, max.	DP slave (active): max. 14; X2 as PROFINET: 24 max. 32; Depending on the configured connections for PG/OP and S7 basic communication
S7 message functions Number of login stations for message functions, max. Process diagnostic messages	DP slave (active): max. 14; X2 as PROFINET: 24 max. 32; Depending on the configured connections for PG/OP and S7 basic communication Yes
S7 message functions Number of login stations for message functions, max. Process diagnostic messages simultaneously active Alarm-S blocks, max.	DP slave (active): max. 14; X2 as PROFINET: 24 max. 32; Depending on the configured connections for PG/OP and S7 basic communication Yes
S7 message functions Number of login stations for message functions, max. Process diagnostic messages simultaneously active Alarm-S blocks, max. Test commissioning functions	DP slave (active): max. 14; X2 as PROFINET: 24 max. 32; Depending on the configured connections for PG/OP and S7 basic communication Yes
S7 message functions Number of login stations for message functions, max. Process diagnostic messages simultaneously active Alarm-S blocks, max. Test commissioning functions Status/control	DP slave (active): max. 14; X2 as PROFINET: 24 max. 32; Depending on the configured connections for PG/OP and S7 basic communication Yes 300
S7 message functions Number of login stations for message functions, max. Process diagnostic messages simultaneously active Alarm-S blocks, max. Test commissioning functions Status/control Status/control variable	DP slave (active): max. 14; X2 as PROFINET: 24 max. 32; Depending on the configured connections for PG/OP and S7 basic communication Yes Yes
S7 message functions Number of login stations for message functions, max. Process diagnostic messages simultaneously active Alarm-S blocks, max. Test commissioning functions Status/control Status/control variable Variables	DP slave (active): max. 14; X2 as PROFINET: 24 max. 32; Depending on the configured connections for PG/OP and S7 basic communication Yes 300 Yes Inputs, outputs, memory bits, DB, times, counters
S7 message functions Number of login stations for message functions, max. Process diagnostic messages simultaneously active Alarm-S blocks, max. Test commissioning functions Status/control Status/control variable Variables Number of variables, max.	DP slave (active): max. 14; X2 as PROFINET: 24 max. 32; Depending on the configured connections for PG/OP and S7 basic communication Yes 300 Yes Inputs, outputs, memory bits, DB, times, counters 30
S7 message functions Number of login stations for message functions, max. Process diagnostic messages simultaneously active Alarm-S blocks, max. Test commissioning functions Status/control Status/control variable Variables Number of variables, max. of which status variables, max.	DP slave (active): max. 14; X2 as PROFINET: 24 max. 32; Depending on the configured connections for PG/OP and S7 basic communication Yes 300 Yes Inputs, outputs, memory bits, DB, times, counters 30 30

Force, variables	Inputs, outputs
Number of variables, max.	10
Status block	Yes ; Up to 2 simultaneously
Single step	Yes
Number of breakpoints	4
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	
Programming language	
LAD	Yes
FBD	Yes
STL	Yes
SCL	Yes
CFC	Yes
GRAPH	Yes
HiGraph®	Yes
Command set	see instruction list
Nesting levels	8

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	Jul 13, 2012