SIEMENS

Data sheet

6ES7317-2EK14-0AB0



SIMATIC S7-300 CPU 317-2 PN/DP, CENTRAL PROCESSING UNIT WITH 1 MB WORKING MEMORY, 1. INTERFACE MPI/DP 12MBIT/S, 2. INTERFACE ETHERNET PROFINET, WITH 2 PORT SWITCH, MICRO MEMORY CARD NECESSARY

Product type designation	
General information	
Hardware product version	01
Firmware version	V3.2
Engineering with	
 Programming package 	STEP7 V 5.5 or higher
Supply voltage	
Rated value (DC)	
• 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	2 A min.
(recommendation)	
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
l ² t	1 A ² ·s
Power losses	
Power loss, typ.	4.65 W

Memory	
Work memory	
Integrated	1 024 kbyte
• expandable	No
 Size of retentive memory for retentive data 	256 kbyte
blocks	
Load memory	
• pluggable (MMC)	Yes
 pluggable (MMC), max. 	8 Mbyte
 Data management on MMC (after last programming), min. 	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
for floating point arithmetic, typ.	0.16 µs
CPU-blocks	
Number of blocks (total)	2 048; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	
• Number, max.	2 048; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
• Number, max.	2 048; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
• Number, max.	2 048; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
• Size, max.	64 kbyte
Number of free cycle OBs	1; OB 1
 Number of time alarm OBs 	1; OB 10
 Number of delay alarm OBs 	2; OB 20, 21
 Number of 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)
	r KOFINET IO (not sinutaneously)

 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	
— can be set	Yes
— lower limit	0
— upper limit	511
— preset	Z 0 to Z 7
Counting range	
— can be set	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	
— can be set	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
• Туре	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Total retentive data area	All, max. 256 KB
Flag	
• Number, max.	4 096 byte
Retentivity available	Yes; From MB 0 to MB 4095
Retentivity preset	MB 0 to MB 15

 Number of clock memories 	8; 1 memory byte
Data blocks	
Number, max.	2 048; 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. 	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	
	8 192 byte
— Inputs	8 192 byte
— Outputs Process image	
	8 192 byte
Inputs	8 192 byte
Outputs	8 192 byte
Inputs, adjustable	8 192 byte
Outputs, adjustable	
Inputs, default	256 byte 256 byte
Outputs, default	230 Dyte
Subprocess images	1; With PROFINET IO, the length of the user data is limited to
 Number of subprocess images, max. 	1600 bytes
Digital channels	
Inputs	65 536
— Inputs, of which central	1 024
Outputs	65 536
— Outputs, of which central	1 024
Analog channels	
Inputs	4 096
— Inputs, of which central	256
Outputs	4 096
— Outputs, of which central	256
Hardware configuration	
Expansion devices, max.	3
Number of DP masters	
Integrated	1
• Via CP	4
Number of operable FMs and CPs (recommended)	

VP. 8 • CP, LAN 10 Rack 4 • Racks, max. 4 • Racks, max. 8 Time of day 5 Clock 5 • Hardware clock (real-time clock) Yes • Indraware clock (real-time clock) Yes • Bardware of the clock following POWER-ON Clock continues turning after POWER OFF • Bardware of the clock following expiry of backup period Clock continues to run with the time at which the power failure occurred Operating hours counter 4 • Number Yes • Io MPI, naster Ye	• FM	8
• CPLIAN 10 Rack • • Racks, max. 4 • Modules per rack, max. 8 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 0 °C ambient temperature • Backup time 6 wk: At 0 °C ambient temperature • Backup time 6 wk: At 0 °C ambient temperature • Backup time 6 wk: At 0 °C ambient temperature • Backup time 6 wk: At 0 °C ambient temperature • Backup time 6 wk: At 0 °C ambient temperature • Backup time 6 wk: At 0 °C ambient temperature • Backup time 6 wk: At 0 °C ambient temperature • Backup time 6 wk: At 0 °C ambient temperature • Backup time 6 wk: At 0 °C ambient temperature • Backup time 6 wk: At 0 °C ambient temperature • Backup time 7 which we the time at which the power failure • Range of values 0 to 3 • Range of values 0 to 2 ^A 31 hours (when using SFC 101) • Granularity 1 hour • retentive Yes • to MPI, master Yes • to MPI, master <td< td=""><td></td><td></td></td<>		
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• Racks, max. 4 • Modules per rack, max. 8 Time of day 1 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 • Bahavior of the clock following POWER-ON Clock continues running after POWER OFF • Behavior of the clock following expiry of backup period cocurred Operating hours counter 4 • Number Number range 0 to 3 • Range of values 0 to 2^31 hours (when using SFC 101) • Granularity 1 hour • retentive Yes • to MPI, master Yes • to MPI, slave Yes • to MPI, slave Yes • to DP, naster Yes • in AS, master Yes • on Ethernet via NTP Ves Poile inputs 0 Outer of digital inputs 0 Olation period 0 Analog inputs 0 Number of dingital outputs 0 <td></td> <td></td>		
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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 • Number 4 • Number range 0 to 3 • Range of values 0 to 2^31 hours (when using SFC 101) • Granularity 1 hour • referentive Yes • to MPI, master Yes • to MPI, master Yes • to DP, slave Yes • to DP, slave Yes • in AS, master Yes • in AS, master Yes • in AS, slave Yes • on Ethernet via NTP Yes; As client Digital outputs 0 Number of digital loutputs 0 Analog inputs 0 Analog inputs 0 Analog inputs 0 Analog inputs 0 Interfaces 0		-
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• 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 Digital inputs 0 Number of digital outputs 0 Analog inputs 0 Analog outputs 0 Number of analog inputs 0 Analog outputs 0 Number of analog outputs 0 Analog outputs 0 Interfaces 0		occurred
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• on Ethernet via NTP Yes; As client Digital inputs Number of digital inputs 0 Digital outputs Number of digital outputs 0 Analog inputs Number of analog inputs 0 Analog outputs Number of analog outputs 0 Interfaces	● in AS, master	Yes
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Interfaces		0
NUMBER OF USB INTERTACES U		
	INUMBER OF USE INTELLACES	U

Number of 20 mA interfaces (TTY)	0
Number of RS 232 interfaces	0
Number of RS 422 interfaces	0
Number of parallel interfaces	0
Number of other interfaces	1; Ethernet, 2-port switch, 2*RJ45

Interface type Integrated RS 485 interface Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. Yes • MPI Yes • DP naster Yes • DP slave Yes • Point-to-point connection No MPI Yes • Transmission rate, max. 12 Mbit/s Services - - PG/GOP communication Yes - Global data communication Yes - S7 basic communication Yes - S7 communication, as client No; but via CP and loadable FB - S7 communication Yes • Transmission rate, max. 124 Services - - PG/GOP communication Yes - Global data communication Yes - S7 communication Yes - S7 communication Yes <t< th=""><th>1st interface</th><th></th></t<>	1st interface	
Isolated Yes Power supply to interface (15 to 30 V DC), max. 200 mA Functionality 200 mA • DP master Yes • DP fave Yes • DP slave Yes • Point-to-point connection No MPI Ves • Transmission rate, max. 12 Mbit/s Services - - PG/OP communication Yes - Global data communication Yes - S7 basic communication Yes - S7 communication Yes - S7 communication, as server Yes - PG/OP communication Yes - PG/OP communication Yes - PG/OP communication Yes - Routing Yes - Routing Yes - PG/OP communication Yes - PG/OP communication Yes - S7 communication Yes - Global data communication Yes - Global data	Interface type	Integrated RS 485 interface
Power supply to interface (15 to 30 V DC), max. 200 mA Functionality Yes • MPI Yes • DP naster 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 124 Mbit/s Services - - PG/OP communication Yes - S7 communication Yes - S7 communication Yes - S7 communication Yes - PG/OP communication Yes - PG/OP communication Yes - Routing Yes - S7 communication Yes - Routing Yes - Global data communication Yes; I blocks only <t< td=""><td>Physics</td><td>RS 485</td></t<>	Physics	RS 485
Functionality Yes • MPI Yes • DP master Yes • DP slave Yes • DP slave Yes • DP int-to-point connection No MPI • Transmission rate, max. 12 Mbit/s Services - - PG/OP communication Yes - Routing Yes - Global data communication Yes - S7 communication, as client No; but via CP and loadable FB - S7 communication, as server Yes DP master 12 Mbit/s • Transmission rate, max. 12 Mbit/s • Number of DP slaves, max. 124 Services - - PG/OP communication Yes - Diabid data communication Yes - Clobal data communication Yes - S7 communication Yes - S7 communication Yes - S7 communication, as server Yes	Isolated	Yes
• MPIYes• DP masterYes• DP slaveYes• Point-to-point connectionNoMPI12 Mbit/s• Transmission rate, max.12 Mbit/sServices PG/OP communicationYes- RoutingYes- Global data communicationYes- S7 basic communicationYes- S7 communication, as clientNo; but via CP and loadable FB- S7 communication, as serverYesDP master-• Transmission rate, max.12 Mbit/s• Number of DP slaves, max.124Services RoutingYes- S7 communicationYes- S7 communicationYes- S7 communicationYes- S7 communicationYes- S7 communicationYes- S7 communicationYes- S7 basic communicationYes- S7 basic communicationYes- S7 basic communicationYes- S7 communicationYes- S7 communicationYes- S7 communicationYes- S7 communicationYes- S7 communication, as serverYes- S1 contronous modeYes (OB 61; isochronous mode can only be used alternatively on	Power supply to interface (15 to 30 V DC), max.	200 mA
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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 Yes • Transmission rate, max. 12 Mbit/s • Transmission rate, max. 12 Mbit/s • Services Yes - PG/OP communication Yes • Services Yes - PG/OP communication Yes - So communication Yes - So communication Yes - S7 basic communication Yes - S7 basic communication Yes - S7 basic communication Yes - S7 communication, as client No - S7 communication, as server Yes - S7 communication, as server Yes - S7 communication, as server	• DP master	Yes
MPI • Transmission rate, max. 12 Mbit/s Services - - Routing Yes - Global data communication Yes - S7 basic communication Yes - S7 communication Yes - S7 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 - - Routing Yes - Global data communication No - S7 basic communication Yes - Global data communication No - S7 basic communication Yes - Global data communication No - S7 communication Yes; I blocks only - S7 communication Yes - S7 communication Yes - S7 communication, as server Yes - S7 communication, as server Yes - S7 communication, as server Yes	• DP slave	Yes
• 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 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; I blocks only - S7 communication Yes - S7 communication Yes - S7 communication, as client No - S7 communication, as client No - S7 communication, as server Yes - S7 communication, as server Yes - S7 communication, as server Yes	 Point-to-point connection 	No
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- RoutingYes- Global data communicationYes- S7 basic communicationYes- S7 communicationYes- S7 communication, as clientNo; but via CP and loadable FB- S7 communication, as serverYesDP masterI Transmission rate, max.12 Mbit/s• Number of DP slaves, max.12 Mbit/sServices- PG/OP communicationYes- RoutingYes- Global data communicationNo- S7 communicationYes; I blocks only- S7 communicationYes- S7 communicationYes- S7 communicationYes- S7 communicationYes- S7 communicationYes- S7 communicationYes- S7 communication, as serverYes- SYNC/FREEZEYes	Services	
- Global data communicationYes- S7 basic communicationYes- S7 communicationYes- S7 communication, as clientNo; but via CP and loadable FB- S7 communication, as serverYesDP masterI masterI masterI P G/OP communicationYesOP masterI P G/OP communicationP PG/OP communicationYes- RoutingYes- Global data communicationNoS7 basic communicationYes; I blocks only- S7 communicationYes- S7 communicationYes- S7 communicationYes- S7 communicationYes- S7 communicationYes- S7 communication, as clientNo- S7 communication, as serverYes- Equidistance mode supportYes- Equidistance mode supportYes- SyNC/FREEZEYes	— PG/OP communication	Yes
Structure communicationYes- S7 basic communicationYes- S7 communication, as clientNo; but via CP and loadable FB- S7 communication, as serverYesDP master• Transmission rate, max.12 Mbit/s• Number of DP slaves, max.124Services- PG/OP communicationYes- RoutingYes- Global data communicationNo- S7 basic communicationYes; I blocks only- S7 communication, as clientNo- S7 communicationYes- S7 communicationYes- S7 communicationYes; I blocks only- S7 communicationYes- S7 communication, as clientNo- S7 communication, as clientNo- S7 communication, as serverYes- Equidistance mode supportYes- Equidistance mode supportYes- SYNC/FREEZEYes	— Routing	Yes
	— Global data communication	Yes
	— S7 basic communication	Yes
S7 communication, as serverYesDP master• Transmission rate, max.12 Mbit/s• Number of DP slaves, max.124ServicesPG/OP communicationYesRoutingYesGlobal data communicationNoS7 basic communicationYes; I blocks onlyS7 communication, as clientNoS7 communication, as clientNoS7 communication, as serverYes;S7 communication, as serverYesS7 communication, as serverYesS7 communication, as serverYesS7 communication, as clientNoS7 communication, as clientYesS7 communication, as serverYesS7 communication, as serverYesS7 communication, as serverYesS7 communication, as serverYesS7 communicationYesS7 communicationYesS7 communicationYesS7 communicationYesS7 communicationYesS7 communicationYesS7 communicationYesS7 communi	— S7 communication	Yes
DP master 12 Mbit/s • 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 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	— S7 communication, as client	No; but via CP and loadable FB
• Transmission rate, max.12 Mbit/s• Number of DP slaves, max.124Services PG/OP communicationYes- RoutingYes- Global data communicationNo- S7 basic communicationYes; I blocks only- S7 communicationYes- S7 communication, as clientNo- S7 communication, as serverYes- Equidistance mode supportYes- Lisochronous modeYes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO- SYNC/FREEZEYes	— S7 communication, as server	Yes
 Number of DP slaves, max. 124 Services PG/OP communication Routing Yes Global data communication No S7 basic communication Yes; I blocks only S7 communication, as client S7 communication, as server S7 communication, as server Yes S0 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO SYNC/FREEZE Yes 	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 Yes - S7 communication Yes - S7 communication, as client No - S7 communication, as server Yes - 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	• Transmission rate, max.	12 Mbit/s
PG/OP communicationYesRoutingYesGlobal data communicationNoS7 basic communicationYes; I blocks onlyS7 communicationYesS7 communication, as clientNoS7 communication, as serverYesS7 communication, as serverYesLequidistance mode supportYesLockronous modeYes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IOSYNC/FREEZEYes	 Number of DP slaves, max. 	124
- RoutingYes- Global data communicationNo- S7 basic communicationYes; I blocks only- S7 communicationYes- S7 communication, as clientNo- S7 communication, as serverYes- S7 communication, as serverYes- Equidistance mode supportYes- Isochronous modeYes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO- SYNC/FREEZEYes	Services	
- Global data communicationNo- S7 basic communicationYes; I blocks only- S7 communicationYes- S7 communication, as clientNo- S7 communication, as serverYes- Equidistance mode supportYes- Isochronous modeYes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO- SYNC/FREEZEYes	— PG/OP communication	Yes
	— Routing	Yes
S7 communicationYes S7 communication, as clientNo S7 communication, as serverYes Equidistance mode supportYes Isochronous modeYes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO SYNC/FREEZEYes	— Global data communication	No
	— S7 basic communication	Yes; I blocks only
- 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	— S7 communication	Yes
	— S7 communication, as client	No
— Isochronous mode Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO — SYNC/FREEZE Yes	— S7 communication, as server	Yes
PROFIBUS DP or PROFINET IO — SYNC/FREEZE Yes	— Equidistance mode support	Yes
	— Isochronous mode	
- Activation/deactivation of DP slaves Yes	- SYNC/FREEZE	Yes
	— Activation/deactivation of DP slaves	Yes

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— Number of DP slaves that can be	8
simultaneously activated/deactivated, max.	Voc As subscriber
 — Direct data exchange (slave-to-slave communication) 	Yes; As subscriber
— DPV1	Yes
Address area	
	8 kbyte
— Inputs, max.	8 kbyte
— Outputs, max.	
User data per DP slave	244 hits
— 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	Yes
communication)	
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2nd interface Interface type	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
Change of IP address at runtime, supported	Yes
Media redundancy	
supported	Yes

 Switchover time on line break, typically 	200 ms; PROFINET MRP
 Number of stations in the ring, max. 	50
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	
 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	Yes
Shared device	Yes
Prioritized startup	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 $\mu s,$ 500 $\mu s,$ 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)
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
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
— User data consistency, max.	1 024 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	Yes
— PROFlenergy	Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device
— Shared device	Yes
 — Number of IO controllers with shared device, max. 	2
Transfer memory	
— Inputs, max.	1 440 byte; Per IO Controller with shared device
— Outputs, max.	1 440 byte; Per IO Controller with shared device
Submodules	
— Number, max.	64
— User data per submodule, max.	1 024 byte
PROFINET CBA	
acyclic transmission	Yes
Cyclic transmission	Yes
Open IE communication	
 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. 	1 460 byte
 — Data length for connection type 11H, max. 	32 768 byte
 — Several passive connections per port, supported 	Yes
• ISO-on-TCP (RFC1006)	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.	16
— Data length, max.	32 768 byte
• UDP	Yes; via integrated PROFINET interface and loadable FBs
— Number of connections, max.	16
— Data length, max.	1 472 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 	1 000
 Data length of all incoming connections master/slave, max. 	4 000 byte
 Data length of all outgoing connections master/slave, max. 	4 000 byte
 Number of device-internal and PROFIBUS interconnections 	500
 Data length of device-internal und PROFIBUS interconnections, max. 	4 000 byte
 Data length per connection, max. 	1 400 byte
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. 	2 000 byte
 — Data length of all outgoing interconnections, max. 	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, max. 	2 000 byte
 — Data length of all outgoing interconnections, max. 	2 000 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.	2 000 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,	0
min.	
 adjustable for S7 basic communication, 	30
max.	
 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
— can be set	No
— Of which powerfail-proof	100; Only the last 100 entries are retained
 Number of entries readable in RUN, max. 	499
— can be set	Yes; From 10 to 499
— preset	10
Service data	
• Can be read out	Yes
Ambient conditions	
Ambient temperature in operation	
• Min.	0 °C
• max.	0°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
 System function blocks (SFB) 	see instruction list
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
Know-how protection	
 User program protection/password protection 	Yes
Block encryption	Yes; With S7 block Privacy
Dimensions	
Width	40 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	340 g
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