SIEMENS

Data sheet



SIMATIC S7-300 CPU319F-3 PN/DP, Central processing unit with 2.5 MB work memory, 1st interface MPI/DP 12 Mbit/s, 2nd interface DP master/slave 3rd interface Ethernet PROFINET, Micro Memory Card required

HW functional status Firmware version Product function Invariant	General information	
Product function Isochronous mode Indicating with Programming package STEP 7 V5.5 or higher, Distributed Safety V5.4 SP4 Supply voltage Rated value (DC) permissible range, lower limit (DC) setternal protection for power supply lines (recommendation) Mains buffering Mains/voltage failure stored energy time Repeat rate, min. Input current Current consumption (rated value) Current consumption (in no-load operation), typ. Inush current, typ. Pt 1,2 A²s Power loss Power loss, typ. Integrated Expandable Load memory Plug-in (MMC) Plug-in (MMC) Plug-in (MMC) Plug-in (MMC) Present Data management on MMC (after last programming), min. Backup Present	HW functional status	01
• Isochronous mode Engineering with • Programming package STEP 7 V5.5 or higher, Distributed Safety V5.4 SP4 Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, lower limit (DC) permissible range, upper limit	Firmware version	V3.2
Programming package STEP 7 V5.5 or higher, Distributed Safety V5.4 SP4 Supply vottage Rated value (DC)	Product function	
Programming package Step 7 V5.5 or higher, Distributed Safety V5.4 SP4 Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit	 Isochronous mode 	Yes; Via 2nd PROFIBUS DP or PROFINET interface
Rated value (DC) permissible range, lower limit (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) external protection for power supply lines (recommendation) Mains buffering • Mains/voltage failure stored energy time • Repeat rate, min. Input current Current consumption (rated value) Current consumption (in no-load operation), typ. Inrush current, typ. Power loss Power loss Power loss, typ. Work memory Work memory • integrated • expandable • expandable No Load memory • Plug-in (MMC) • Plug-in (MMC), max. • Data management on MMC (after last programming), min. Backup • present • without battery for bid operations, typ. for bid operations, typ. for floating point arithmetic, typ. 19. 24 V 19. 2 A min. 19. 2	Engineering with	
Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible r	 Programming package 	STEP 7 V5.5 or higher, Distributed Safety V5.4 SP4
permissible range, lower limit (DC) permissible range, upper limit (DC) external protection for power supply lines (recommendation) Mains buffering • Mains/voltage failure stored energy time • Repeat rate, min. Input current Current consumption (rated value) Current consumption (in no-load operation), typ. Inrush current, typ. Pt 1,2 A²-s Power loss Power loss Power loss, typ. 14 W Memory Work memory • Integrated • expandable No Load memory • Plug-in (MMC), max. • Data management on MMC (after last programming), min. Backup • present • without battery For bit operations, typ. for bit operations, typ. for filed applied a file in the filed and in the file in the fi	Supply voltage	
permissible range, upper limit (DC) external protection for power supply lines (recommendation) Mains buffering • Mains/voltage failure stored energy time • Repeat rate, min. Input current Current consumption (rated value) Current consumption (in no-load operation), typ. Inrush current, typ. Power loss Power loss, typ. Power loss, typ. Work memory • integrated • expandable No Load memory • Plug-in (MMC) • Plug-in (MMC), max. • Data management on MMC (after last programming), min. Backup • present • without battery for bit operations, typ. for bit operations, typ. for fixed point arithmetic, typ. 2 A min. 3 min. 5 ms 4 A 4 A 4 A 4 A 4 A 4 A 1 4 A 1 4 A 1 4 W Memory Work memory • integrated • expandable • No Load memory • Plug-in (MMC) • Plug-in (MMC) • Pses • Without pattery • Pses • Ves • Ves • Ves • Ves • Out µs • Or bit operations, typ. • Or bit operations, typ. • Or fixed point arithmetic, typ. • Out µs • Or fixed point arithmetic, typ. • Out µs • Or fixed point arithmetic, typ. • Out µs	Rated value (DC)	24 V
external protection for power supply lines (recommendation) Mains buffering • Mains/voltage failure stored energy time • Repeat rate, min. Input current Current consumption (rated value) Current consumption (in no-load operation), typ. Inrush current, typ. Pet 1,2 A²-s Power loss Power loss, typ. Memory Work memory • integrated • expandable Load memory • Plug-in (MMC), max. • Data management on MMC (after last programming), min. Backup • present • without battery Por word operations, typ. for fixed point arithmetic, typ. 0.01 µs for floating point arithmetic, typ. 1 4 min. 1 s 1 s 1 s 1 s 1 s 1 s 1 s 1	permissible range, lower limit (DC)	19.2 V
(recommendation) Mains buffering • Mains/voltage failure stored energy time • Repeat rate, min. Input current Current consumption (rated value) Current consumption (in no-load operation), typ. Inrush current, typ. Pt 1,2 A²s Power loss Power loss, typ. 14 W Memory Work memory • integrated • expandable No Load memory • Plug-in (MMC) • Plug-in (MMC), max. • Data management on MMC (after last programming), min. Backup • present • without battery For bit operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. for floating point arithmetic, typ. 1 250 mA 1 250 mA 1 4 W We 1 250 mA 1 2 A²s 2 500 mA 1 1.2 A²s 1 2 S60 kbyte • expandable 1 1 2 S60 kbyte • expandable 1 2 S60 kbyte • expandable 1 3 S60 kbyte • expandable 1 4 S60 kbyte • expandable 1 5 S60 kbyte • expandable 1 6 O S60 kbyte • expandable 1 7 Es 1 0 O O O O O O O O O O O O O O O O O O	permissible range, upper limit (DC)	28.8 V
• Mains/voltage failure stored energy time • Repeat rate, min. Input current Current consumption (rated value) Current consumption (in no-load operation), typ. Inrush current, typ. Inrush current Inrush cur		2 A min.
Repeat rate, min. Input current Current consumption (rated value) Current consumption (in no-load operation), typ. Inrush current, typ. I²t 1.2 A²-s Power loss Power loss, typ. Memory Work memory integrated expandable No Load memory Plug-in (MMC), max. Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present present ves without battery For bit operations, typ. for word operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. for floating point arithmetic, typ. for floating point arithmetic, typ. 1 250 mA 1 250 mA 1 4 W P 4 W Memory 1 2 560 kbyte 2 560 kbyte 2 560 kbyte 2 560 kbyte 1 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Mains buffering	
Input current Current consumption (rated value) Current consumption (in no-load operation), typ. Intush current, t	Mains/voltage failure stored energy time	5 ms
Current consumption (rated value) Current consumption (in no-load operation), typ. Intush current, typ. Intush cur	 Repeat rate, min. 	1 s
Current consumption (in no-load operation), typ. Inrush current, typ. If t 1.2 A²-s Power loss Power loss, typ. 14 W Memory Work memory • integrated 2 560 kbyte • expandable No Load memory • Plug-in (MMC), max. • Data management on MMC (after last programming), min. Backup • present Yes • without battery Yes CPU processing times for bit operations, typ. for ord operations, typ. for fixed point arithmetic, typ. for findating point arithmetic, typ. 0.004 µs	Input current	
Inrush current, typ. 4 A I²t 1.2 A²-s Power loss Power loss, typ. 14 W Memory Work memory • integrated 2 560 kbyte • expandable No Load memory • Plug-in (MMC) Yes • Plug-in (MMC), max. 8 Mbyte • Data management on MMC (after last programming), min. Backup • present Yes • without battery Yes CPU processing times for bit operations, typ. 50 0.004 µs for ford point arithmetic, typ. 0.01 µs for floating point arithmetic, typ. 0.01 µs for floating point arithmetic, typ. 0.04 µs	Current consumption (rated value)	1 250 mA
Power loss, typ. Power loss, typ. 14 W Memory Work memory integrated expandable expandable No Load memory Plug-in (MMC), max. Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present exit yes without battery Presest exit operations, typ. for word operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. 14 W W W W W W W W D D D D D D	Current consumption (in no-load operation), typ.	500 mA
Power loss Power loss, typ. 14 W Memory Work memory integrated expandable No Load memory Plug-in (MMC) Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present without battery Yes CPU processing times for bit operations, typ. for word operations, typ. for floating point arithmetic, typ. for floating point arithmetic, typ. for floating point arithmetic, typ. 14 W W W W W Sebackup Yes Yes Ves O.004 µs O.01 µs	Inrush current, typ.	4 A
Power loss, typ. Memory Work memory integrated expandable No Load memory Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present without battery For bit operations, typ. for word operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. 14 W W W W W Cather last Do a	l²t	1.2 A ² ·s
Memory Work memory integrated expandable No Load memory Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present without battery For bit operations, typ. for word operations, typ. for floating point arithmetic, typ. for floating point arithmetic, typ. for floating point arithmetic, typ. integrated 2 560 kbyte 2 560 kbyte No 2 560 kbyte 4 7es Yes Yes 9 Whyte 10 a	Power loss	
Work memory	Power loss, typ.	14 W
 integrated expandable No Load memory Plug-in (MMC) Plug-in (MMC), max. Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present without battery CPU processing times for bit operations, typ. for word operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. 0.04 µs for floating point arithmetic, typ. 0.04 µs onumber 2 560 kbyte No No a 560 kbyte No A 500 kbyte a 600 kbyte a 700 kbyt	Memory	
 expandable Load memory Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present without battery Yes without battery CPU processing times for bit operations, typ. for word operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. 0.04 μs for floating point arithmetic, typ. 0.04 μs 	Work memory	
Load memory Plug-in (MMC) Plug-in (MMC), max. Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present without battery Pes CPU processing times for bit operations, typ. for word operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. 10 a Yes Yes Yes O.004 D.004 D.001	integrated	2 560 kbyte
 Plug-in (MMC) Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present without battery CPU processing times for bit operations, typ. for word operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. 0.04 µs for floating point arithmetic, typ. 0.04 µs 	expandable	No
 Plug-in (MMC), max. Data management on MMC (after last programming), min. Backup present without battery CPU processing times for bit operations, typ. for word operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. 0.004 μs O.01 μs	Load memory	
 Data management on MMC (after last programming), min. Backup present without battery CPU processing times for bit operations, typ. for word operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. 0.004 μs O.01 μs O.01	Plug-in (MMC)	Yes
programming), min. Backup ● present ● without battery CPU processing times for bit operations, typ. for word operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. for floating point arithmetic, typ. 0.004 μs	Plug-in (MMC), max.	8 Mbyte
	·	10 a
● without battery CPU processing times for bit operations, typ. for word operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. 0.004 μs 0.01 μs 0.01 μs	Backup	
CPU processing times for bit operations, typ. for word operations, typ. for fixed point arithmetic, typ. for floating point arithmetic, typ. $0.004 \mu s$ $0.01 \mu s$ $0.01 \mu s$ $0.01 \mu s$	present	Yes
for bit operations, typ. $0.004~\mu s$ for word operations, typ. $0.01~\mu s$ for fixed point arithmetic, typ. $0.01~\mu s$ for floating point arithmetic, typ. $0.04~\mu s$	without battery	Yes
for word operations, typ. $0.01 \mu s$ for fixed point arithmetic, typ. $0.01 \mu s$ for floating point arithmetic, typ. $0.04 \mu s$	CPU processing times	
for fixed point arithmetic, typ. $0.01 \mu s$ for floating point arithmetic, typ. $0.04 \mu s$	for bit operations, typ.	0.004 µs
for floating point arithmetic, typ. 0.04 µs	for word operations, typ.	0.01 μs
	for fixed point arithmetic, typ.	0.01 μs
CPU-blocks	for floating point arithmetic, typ.	0.04 μs
	CPU-blocks	

Number of blocks (total)	4 096; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	
Number, max.	4 096; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
Number, max.	4 096; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
Number, max.	4 096; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
Size, max.	64 kbyte
 Number of free cycle OBs 	1; OB 1
 Number of time alarm OBs 	1; OB 10
 Number of delay alarm OBs 	2; OB 20, 21
 Number of cyclic interrupt OBs 	4; OB 32, 33, 34, 35 (OB 35: smallest settable clock pulse = 500 μs)
 Number of process alarm OBs 	1; OB 40
 Number of DPV1 alarm OBs 	3; OB 55, 56, 57
 Number of isochronous mode OBs 	1; OB 61
 Number of 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	2 048
Retentivity	2 040
— adjustable	Yes
— lower limit	0
	2 047
— upper limit — preset	Z 0 to Z 7
·	201021
Counting range	Yes
— adjustable — lower limit	0
— upper limit	999
IEC counter • present	Yes
·	SFB
TypeNumber	
	Unlimited (limited only by RAM capacity)
S7 times	2 048
Number Potentivity	2 UTU
Retentivity	Voe
— adjustable — lower limit	Yes 0
— upper limit	2 047
— preset	No retentivity
Time range	10 mg
— lower limit	10 ms 9 990 s
— upper limit	3 33U S
IEC timer	Von
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	700 kbyte
Flag	
• Size, max.	8 192 byte
 Retentivity available 	Yes; From MB 0 to MB 8 191
Retentivity preset	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
Data blocks	

** Returning present	Retentivity adjustable	Yes; via non-retain property on DB
Por priority class, max. 32 788 byte: Max. 2048 bytes per block		
Marticles area		
Popular	per priority class, max.	32 768 byte; Max. 2048 bytes per block
• (Duputs 8 192 byte 192 b	Address area	
	I/O address area	
Figure Company State S	•	
Inputs		8 192 byte
— Outputs Process image Process images Process im		0.400 h. 4-
Process image		
• Inputs		o 192 byte
 Outputs dijustable Inputs, adjustable Outputs, adjustable Outputs, adjustable Outputs, default Outputs Inputs Inputs Of which central Outputs Ou	-	8 192 byte
• Inputs, default 1024 byte 1024 bytes 1024	 Inputs, adjustable 	
● Outputs, default Subprocess images ● Number of subprocess images, max. Inputs ● Inputs ● Ord which central ● Outputs ● Ord which central ●	 Outputs, adjustable 	8 192 byte
Subprocess images Number of subprocess images, max. Digital channels Inputs		1 024 byte
Number of subprocess images, max. injusts injusts — of which central Outputs Outputs Outputs Outputs Outputs Outputs Outputs Outputs Outputs Outputs Outputs Outputs Outputs Outputs Outputs Outputs Outputs Outputs Outpu		1 024 byte
Digital channels		4. With DDOFINET IO the Latter Control of the Contr
Digital channels Inputs	 Number of subprocess images, max. 	
of which central	Digital channels	
Outputs	•	
Analog channels Inputs		
		1 024
- of which central		4 096
Outputs — of which central 256 Hardware configuration Number of DP masters integrated 2 via CP 4 Number of operable FMs and CPs (recommended) FM 8 CP, PtP 8 CP, LAN 10 Rack Racks, max. 4 Modules per rack, max. 4 Modules per rack, max. 8 Time of day Clock Hardware clock (real-time) Yes retentive and synchronizable 6 Backup time 6 Deviation per day, max. 10 s; Typ.: 2 s Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number of an experimental of the clock following POWER off the clock continues at the time of day it had when power was switched off Operating hours counter Number 1 Number (Number 1) Number (Number range 0) to 3 Range of values 0) to 2°31 hours (when using SFC 101) The cetentive Yes; Must be restarted at each restart Clock synchronization Supported Yes Other of whell, slave Yes Other of which DP, slave Yes Other only slave only slave clock Ves: With DP slave only slave clock		
Hardware configuration Number of DP masters		
Integrated		
Integrated	Hardware configuration	
via CP Number of operable FMs and CPs (recommended) FM		
Number of operable FMs and CPs (recommended) • FM • CP, PtP • CP, LAN 10 Rack • Racks, max. • Modules per rack, max. • Modules per rack, max. • Modules per rack, max. • Modules per rack, max. • Modules per rack, max. • Modules per rack, max. * Time of day Clock • Hardware clock (real-time) • retentive and synchronizable • Backup time • Deviation per day, max. • Behavior of the clock following POWER-ON • Behavior of the clock following expiry of backup period Operating hours counter • Number • Number • Number Operating hours counter • Number Operat	_	2
FM CP, PtP CP, PtP CP, LAN CP	133 21	4
• CP, PtP • CP, LAN 10 Rack • Racks, max. • Modules per rack, max. 10 **Modules per rack, max. • Modules per rack, max. • Hardware clock (real-time) • retentive and synchronizable • Backup time • Deviation per day, max. • Behavior of the clock following POWER-ON • Behavior of the clock following expiry of backup period **Operating hours counter* • Number • Number A Number/Number range • Number/Number range • Range of values • Granularity • retentive • Clock synchronization • supported • to MPI, master • to MPI, slave • to DP, master • to DP, slave • Yes • Yes • to DP, slave • Yes • Y		
CP, LAN Rack Racks, max. Modules per rack, max. Modules per rack, max. Modules per rack, max. Hardware clock (real-time) retentive and synchronizable Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Deperating hours counter Number Number Number A Number/Number range Range of values Granularity retentive Clock synchronization supported Supported Mel Nave Mel Na		
Rack Racks, max. Modules per rack, max. Modules per rack, max. Modules per rack, max. Parameter of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Number of values Range of values Granularity retentive Clock synchronization Yes Music of the clock following expiry of backup and the time of day it had when power was switched off Destain a fine of the clock following expiry of backup and the clock continues at the time of day it had when power was switched off Operating hours counter Number Number of values Number of values of values Number of values Number of values Number of values of values Number of values Number of values of values Numb		
Racks, max. Modules per rack, max. Modules Pes Mow Kat 40 °C ambient temperature Modules of wk; At 40 °C ambient tempe		10
Modules per rack, max. Firme of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Number ange Range of values Range of values Range of values Seranularity Fretentive Clock synchronization Seranularity Fres Supported Suppo		4
Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Number Number 4 Number/Number range Range of values Range of values Scraularity retentive Supported Ves; Must be restarted at each restart Olock synchronization Supported OMP, master OMP, slave Ves; With DP slave only slave clock Ves	•	
Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Coperating hours counter Number Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave to DP, slave Yes Yes Yes Yes Yes Yes Yes Y		
 Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number/Number range Range of values Granularity retentive Supported supported to MPI, master to MPI, slave to DP, master to DP, slave 		
 Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization Supported to MPI, master to MPI, slave to DP, master Deviation per day, max. 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off 10 to 3 10 to 3 10 to 2^31 hours (when using SFC 101) 11 h 12 yes; Must be restarted at each restart 13 Yes; Must be restarted at each restart 14 Yes 15 Yes 16 Yes 17 Yes 18 Yes 19 Yes 10 MPI, slave 10 MPI, slave 10 MPI, slave only slave clock 10 Yes 11 Yes; With DP slave only slave clock 11 Yes 12 Yes 13 Yes 14 Yes 15 Yes 16 Yes 17 Yes 18 Yes 18 Yes 19 Yes 10 Yes		Yes
 Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number/Number range Range of values Granularity retentive Clock synchronization Supported to MPI, master to MPI, slave to DP, master Deviation per day, max. Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off Clock continues at the time of day it had when power was switched off 4 0 to 3 0 to 3 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart Clock synchronization Yes to MPI, slave Yes to DP, master Yes; With DP slave only slave clock Yes 	 retentive and synchronizable 	Yes
 Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number/Number range Range of values Granularity retentive Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off 0 to 3 Range of values 0 to 2^31 hours (when using SFC 101) 1 h retentive Yes; Must be restarted at each restart Clock synchronization supported to MPI, master to MPI, slave to DP, master to DP, master to DP, slave Yes 		
 Behavior of the clock following expiry of backup period 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 the clock continues at the time of day it had when power was switched off the clock continues at the time of day it had when power was switched off to 3 to 3 to 2^31 hours (when using SFC 101) the clock continues at the time of day it had when power was switched off 		• •
period off Operating hours counter Number Number Number frange Range of values Range of values Granularity retentive Clock synchronization supported MPI, master To MPI, slave To DP, master To DP, slave off Off 4 0 to 3 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart Clock synchronization Yes Yes Yes Yes Yes With DP slave only slave clock Yes		-
Operating hours counter Number Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave to DP, master to DP, slave Yes Yes Yes Yes Yes Yes Yes Y		
 Number/Number range Range of values O to 2^31 hours (when using SFC 101) Granularity retentive Yes; Must be restarted at each restart Clock synchronization supported to MPI, master to MPI, slave to DP, master Yes to DP, slave Yes; With DP slave only slave clock to DP, slave 	·	
 Range of values Granularity retentive Supported to MPI, master to MPI, slave to DP, master to DP, slave Yes Yes; Must be restarted at each restart 		4
 Granularity retentive Yes; Must be restarted at each restart Clock synchronization supported to MPI, master to MPI, slave to DP, master to DP, slave Yes Yes 		
 retentive Yes; Must be restarted at each restart Clock synchronization supported to MPI, master to MPI, slave to DP, master to DP, slave Yes Yes Yes Yes Yes Yes; With DP slave only slave clock Yes 		
Clock synchronization • supported • to MPI, master • to MPI, slave • to DP, master • to DP, slave • to DP, slave • to DP, slave Yes Yes Yes; With DP slave only slave clock Yes		
 supported to MPI, master to MPI, slave to DP, master to DP, slave Yes Yes With DP slave only slave clock Yes 		res, must de restarted at each restart
 to MPI, master to MPI, slave to DP, master to DP, slave Yes Yes Yes Yes; With DP slave only slave clock Yes 	-	Yes
 to MPI, slave to DP, master to DP, slave Yes Yes; With DP slave only slave clock Yes 	• • • • • • • • • • • • • • • • • • • •	
 to DP, master to DP, slave Yes; With DP slave only slave clock Yes 	•	
• to DP, slave	•	

• in AS, slave	Yes
on Ethernet via NTP	Yes; As client
Digital inputs	
Number of digital inputs	0
Digital outputs	
Number of digital outputs	0
Analog inputs	
Number of analog inputs	0
Analog outputs	
Number of analog outputs	0
Interfaces	
Number of industrial Ethernet interfaces	1
Number of PROFINET interfaces	1
Number of RS 485 interfaces	2
Number of RS 422 interfaces	0
1. Interface	
Interface type	Integrated RS 485 interface
Isolated	Yes
Interface types	Von
RS 485 Output current of the interface, may	Yes 150 mA
Output current of the interface, max. Protocols	150 IIIA
• MPI	Yes
PROFIBUS DP master	Yes
PROFIBUS DP slave	Yes; A DP slave at both interfaces simultaneously is not possible
Point-to-point connection	No
MPI	
Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
 Global data communication 	Yes
 S7 basic communication 	Yes
— S7 communication	Yes
 S7 communication, as client 	No; but via CP and loadable FB
— S7 communication, as server	Yes
PROFIBUS DP master	40 MI W
Transmission rate, max.Number of DP slaves, max.	12 Mbit/s 124
Services	124
— PG/OP communication	Yes
— Routing	Yes
Global data communication	No
— S7 basic communication	Yes; I blocks only
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	No
— SYNC/FREEZE	Yes
 Activation/deactivation of DP slaves 	Yes
Number of DP slaves that can be	8
simultaneously activated/deactivated, max.	Voc. on authorihor
 Direct data exchange (slave-to-slave communication) 	Yes; as subscriber
— DPV1	Yes
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
PROFIBUS DP slave	

 Transmission rate, max. 	12 Mbit/s
automatic baud rate search	Yes; only with passive interface
Address area, max.	32
User data per address area, max.	32 byte
Services	
— PG/OP communication	Yes
Routing	Yes; with interface active
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)	. 33
— DPV1	No
	110
Transfer memory	****
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
	Integrated DS 495 interface
Interface type	Integrated RS 485 interface
Isolated	Yes
Interface types	
• RS 485	Yes
 Output current of the interface, max. 	200 mA
Protocols	
	No
• MPI	No
 PROFINET IO Controller 	No
 PROFINET IO Device 	No
PROFINET CBA	No
PROFIBUS DP master	Yes
PROFIBUS DP slave	
	Yes; A DP slave at both interfaces simultaneously is not possible
Open IE communication	No
Web server	No
PROFIBUS DP master	
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	124
	124
Services	
— PG/OP communication	Yes
— Routing	Yes
Global data communication	No
— Giobai data Communication	No
 S7 basic communication 	Yes; I blocks only
— S7 basic communication— S7 communication	Yes; I blocks only Yes
 S7 basic communication 	Yes; I blocks only
— S7 basic communication— S7 communication	Yes; I blocks only Yes
 S7 basic communication S7 communication S7 communication, as client S7 communication, as server 	Yes; I blocks only Yes No
 S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes
 S7 basic communication S7 communication S7 communication, as client S7 communication, as server 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET
 S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance Isochronous mode 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously)
 S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance Isochronous mode SYNC/FREEZE 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes
 S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance Isochronous mode SYNC/FREEZE Activation/deactivation of DP slaves 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes
 S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance Isochronous mode SYNC/FREEZE Activation/deactivation of DP slaves Number of DP slaves that can be 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes
 S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance Isochronous mode SYNC/FREEZE Activation/deactivation of DP slaves Number of DP slaves that can be simultaneously activated/deactivated, max. 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes
 S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance Isochronous mode SYNC/FREEZE Activation/deactivation of DP slaves Number of DP slaves that can be 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes
 S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance Isochronous mode SYNC/FREEZE Activation/deactivation of DP slaves Number of DP slaves that can be simultaneously activated/deactivated, max. 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes 8
 S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance 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) 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes 8
 S7 basic communication S7 communication S7 communication, as client S7 communication, as server Equidistance 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; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes 8 Yes; as subscriber
 S7 basic communication S7 communication, as client S7 communication, as server Equidistance 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) DPV1 Address area 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes Yes Yes Yes 8 Yes; as subscriber Yes
 S7 basic communication S7 communication, as client S7 communication, as server Equidistance 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) DPV1 Address area Inputs, max. 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes Yes 8 Yes; as subscriber Yes 8 kbyte
 S7 basic communication S7 communication, as client S7 communication, as server Equidistance 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) DPV1 Address area Inputs, max. Outputs, max. 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes Yes Yes Yes 8 Yes; as subscriber Yes
 S7 basic communication S7 communication, as client S7 communication, as server Equidistance 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) DPV1 Address area Inputs, max. Outputs, max. User data per DP slave 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes Yes 8 Yes; as subscriber Yes 8 kbyte 8 kbyte
 S7 basic communication S7 communication, as client S7 communication, as server Equidistance 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) DPV1 Address area Inputs, max. Outputs, max. 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes Yes 8 Yes; as subscriber Yes 8 kbyte
 S7 basic communication S7 communication, as client S7 communication, as server Equidistance 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) DPV1 Address area Inputs, max. Outputs, max. User data per DP slave 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes Yes 8 Yes; as subscriber Yes 8 kbyte 8 kbyte
 S7 basic communication S7 communication, as client S7 communication, as server Equidistance 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) DPV1 Address area Inputs, max. Outputs, max. User data per DP slave Inputs, max. Outputs, max. Outputs, max. Outputs, max. Outputs, max. 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes 8 Yes; as subscriber Yes 8 kbyte 8 kbyte 244 byte
 S7 basic communication S7 communication, as client S7 communication, as server Equidistance 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) DPV1 Address area Inputs, max. Outputs, max. User data per DP slave Inputs, max. Outputs, max. Outputs, max. PROFIBUS DP slave 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes 8 Yes; as subscriber Yes 8 kbyte 8 kbyte 244 byte 244 byte
 S7 basic communication S7 communication, as client S7 communication, as server Equidistance 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) DPV1 Address area Inputs, max. Outputs, max. User data per DP slave Inputs, max. PROFIBUS DP slave GSD file 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes Yes 8 Yes; as subscriber Yes 8 kbyte 8 kbyte 244 byte The latest GSD file is available at: http://www.siemens.com/profibus-gsd
 S7 basic communication S7 communication, as client S7 communication, as server Equidistance 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) DPV1 Address area Inputs, max. Outputs, max. Outputs, max. PROFIBUS DP slave GSD file Transmission rate, max. 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes Yes 8 Yes; as subscriber Yes 8 kbyte 8 kbyte 244 byte 244 byte The latest GSD file is available at: http://www.siemens.com/profibus-gsd 12 Mbit/s
 S7 basic communication S7 communication, as client S7 communication, as server Equidistance 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) DPV1 Address area Inputs, max. Outputs, max. User data per DP slave Inputs, max. PROFIBUS DP slave GSD file 	Yes; I blocks only Yes No Yes; Connection configured on one side only Yes Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously) Yes Yes Yes 8 Yes; as subscriber Yes 8 kbyte 8 kbyte 244 byte The latest GSD file is available at: http://www.siemens.com/profibus-gsd

Address area, max.	32
User data per address area, max.	32 byte
Services	
— PG/OP communication	Yes
— Routing	Yes; with interface active
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)	100
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
3. Interface	·
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes; 10/100 Mbit/s
Autonegotiation	Yes
Autorregoliation Autocrossing	Yes
3	Yes
Change of IP address at runtime, supported Interface types	160
RJ 45 (Ethernet)	Yes
Number of ports	2
integrated switch	Yes
Protocols	163
• MPI	No
PROFINET IO Controller	Yes; Also simultaneously with I-Device functionality
PROFINET IO Controller PROFINET IO Device	Yes; Also simultaneously with IO Controller functionality
PROFINET CBA	Yes
PROFIBUS DP master	No
PROFIBUS DP slave	No
Open IE communicationWeb server	Yes; Via TCP/IP, ISO on TCP, and UDP Yes
Media redundancy	Yes
PROFINET IO Controller	les
Transmission rate, max.	100 Mbit/s
Services	TOO MIDIUS
— PG/OP communication	Yes
— Routing	Yes
Routing S7 communication	Yes; with loadable FBs, max. configurable connections: 16, max.
	number of instances: 32
— Isochronous mode	Yes; OB 61 - isochronous mode is possible either on DP or PROFINET
	IO (not simultaneously)
— Shared device	Yes
 Prioritized startup 	Yes
 Number of IO devices with prioritized startup, 	32
max.	
 Number of connectable IO Devices, max. 	256
 Of which IO devices with IRT, max. 	64
— of which in line, max.	64
Number of IO Devices with IRT and the option	256
"high flexibility"	24
— of which in line, max.	61
 Number of connectable IO Devices for RT, 	256
max.	256
— of which in line, max.	256 Van
Activation/deactivation of IO Devices	Yes
 Number of IO Devices that can be simultaneously activated/deactivated, max. 	8
— IO Devices changing during operation (partner)	Yes
ports), supported	160
Number of IO Devices per tool, max.	8

 Device replacement without swap medium 	Yes
— Send cycles	250 µs, 500 µs,1 ms; 2 ms, 4 ms (not in the case of IRT with "high
	flexibility" option)
— Updating time	250 µs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, technical Data" for more details)
Address area	300 of 6 31x3 and of 6 31x, technical bata for more details)
— 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
— IRT	Yes
— PROFlenergy	Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB
Charad davisa	for I-Device
— Shared device— Number of IO Controllers with shared device,	Yes 2
— Number of 10 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. 	32
 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	
Keep-alive function, supported Protocols	65532, 65533, 65534, 65535 Yes
Keep-alive function, supported Protocols PROFIsafe	65532, 65533, 65534, 65535
Keep-alive function, supported Protocols PROFIsafe Redundancy mode	65532, 65533, 65534, 65535 Yes
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy	65532, 65533, 65534, 65535 Yes
• Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ.	65532, 65533, 65534, 65535 Yes Yes 200 ms; PROFINET MRP
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max.	65532, 65533, 65534, 65535 Yes
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication	65532, 65533, 65534, 65535 Yes Yes 200 ms; PROFINET MRP 50
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication • TCP/IP	Yes Yes Yes Yes Yes; via integrated PROFINET interface and loadable FBs
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication TCP/IP — Number of connections, max.	Yes Yes Yes Yes Yes Yes Yes; via integrated PROFINET interface and loadable FBs 32
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication TCP/IP — Number of connections, max. — Data length for connection type 01H, max.	Yes Yes Yes Yes Yes Yes Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication • TCP/IP — Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max.	Yes Yes Yes Yes Yes Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication • TCP/IP — Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. • ISO-on-TCP (RFC1006)	Yes Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy Switchover time on line break, typ. Number of stations in the ring, max. Open IE communication TCP/IP Number of connections, max. Data length for connection type 01H, max. Data length for connection type 11H, max. ISO-on-TCP (RFC1006) Number of connections, max.	Yes Yes Yes Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication • TCP/IP — Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. • ISO-on-TCP (RFC1006)	Yes Yes Yes Yes Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte
Note that the function is supported is a supported in the ring is a supported in the ring is a supported in the ring is a support of the ring is	Yes Yes Yes Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32
Keep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy Switchover time on line break, typ. Number of stations in the ring, max. Open IE communication TCP/IP Number of connections, max. Data length for connection type 01H, max. Data length for connection type 11H, max. ISO-on-TCP (RFC1006) Number of connections, max. Data length, max.	Yes Yes Yes Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs
Note that the function is supported is a supported in the ring is a supported in the ring is a supported in the ring is a support in the ring is	Yes Yes Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32
New York Protocols Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. UDP — Number of connections, max. — Data length, max.	Yes Yes Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32
New York Protocols Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. UDP — Number of connections, max. — Data length, max. UDP — Number of connections, max. — Data length, max. Web server	Yes Yes Yes Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 1 472 byte
New York Connections, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. Number of connections, max. — Data length, max. Data length, max. UDP — Number of connections, max. — Data length, max. Web server supported	Yes Yes Yes Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 1 472 byte Yes
New York Protocols Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. Number of connections, max. — Data length, max. Number of connections, max. — Data length, max. UDP — Number of connections, max. — Data length, max. Web server supported User-defined websites	Yes Yes Yes Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 1 472 byte Yes Yes
New York Connection Supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication • TCP/IP — Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. • UDP — Number of connections, max. — Data length, max. Veb server • supported • User-defined websites • Number of HTTP clients	Yes Yes Yes Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 1 472 byte Yes Yes
New York Communication of the protocols Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication • TCP/IP — Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. • UDP — Number of connections, max. — Data length, max. Web server • supported • User-defined websites • Number of HTTP clients communication functions / header	Yes Yes Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 1 472 byte Yes Yes Yes Yes
New York Communication New York Communication type 11H, max. Ne	Yes Yes Yes Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 1 472 byte Yes Yes Yes Yes
New York Protocols Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. Number of connections, max. — Data length, max. Number of connections, max. — Data length, max. UDP — Number of connections, max. — Data length, max. Web server Supported User-defined websites Number of HTTP clients Communication functions / header PG/OP communication Data record routing	Yes Yes Yes Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 1 472 byte Yes Yes Yes Yes
New York Protocols Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. UDP — Number of connections, max. — Data length, max. Veb server supported User-defined websites Number of HTTP clients communication functions / header PG/OP communication Data record routing Global data communication	Yes Yes Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 1 472 byte Yes Yes Yes Yes Yes Yes Yes
Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication • TCP/IP — Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. • UDP — Number of connections, max. — Data length, max. Veb server • supported • User-defined websites • Number of HTTP clients communication functions / header PG/OP communication Data record routing Global data communication • supported	Yes Yes Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 1 472 byte Yes Yes Yes Yes Yes
Reep-alive function, supported Protocols PROFIsafe Redundancy mode Media redundancy — Switchover time on line break, typ. — Number of stations in the ring, max. Open IE communication • TCP/IP — Number of connections, max. — Data length for connection type 01H, max. — Data length for connection type 11H, max. • ISO-on-TCP (RFC1006) — Number of connections, max. — Data length, max. • UDP — Number of connections, max. — Data length, max. Web server • supported • User-defined websites • Number of HTTP clients communication functions / header PG/OP communication Data record routing Global data communication • supported • Number of GD loops, max.	Yes Yes Yes 200 ms; PROFINET MRP 50 Yes; via integrated PROFINET interface and loadable FBs 32 1 460 byte 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 32 768 byte Yes; via integrated PROFINET interface and loadable FBs 32 1 472 byte Yes Yes Yes Yes Yes Yes

 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	X_021 do 001v01)
• supported	Yes
as server	Yes
• as client	Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB
• User data per job, max.	See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)
S5 compatible communication	
supported	Yes; via CP and loadable FC
communication functions / PROFINET CBA (with set target c	ommunication load) / header
 Setpoint for the CPU communication load 	20 %
 number of remote connection partners / with PROFINET CBA 	32
 number of technological functions / with PROFINET CBA / for master or slave 	50
 number of connections / with PROFINET CBA / for master or slave / total 	3 000
 data volume / of the input variables / with PROFINET CBA / for master or slave 	24 000 byte
 data volume / of the output variables / with PROFINET CBA / for master or slave 	24 000 byte
number of internal and PROFIBUS interconnections / with PROFINET CBA / maximum	1 000
 data volume / of internal and PROFIBUS interconnections / with PROFINET CBA / for master or slave 	8 000 byte
data volume / with PROFINET CBA / per connection / maximum	1 400 byte
performance data / PROFINET CBA / remote interconne	ction / with acyclic transfer / header
 update time / of the remote interconnections / in the case of acyclic transmission / with PROFINET CBA 	200 ms
 number of remote connections to input variables / in the case of acyclic transmission / with PROFINET CBA / maximum 	100
— number of remote connections to output variables / in the case of acyclic transmission / with PROFINET CBA / maximum	100
 data volume / as user data for remote interconnections with input variables / in the case of acyclic transmission / with PROFINET CBA 	3 200 byte
 data volume / as user data for remote interconnections with output variables / in the case of acyclic transmission / with PROFINET CBA 	3 200 byte
 data volume / as user data for remote interconnections / in the case of acyclic transmission / with PROFINET CBA / per connection / maximum 	1 400 byte
performance data / PROFINET CBA / remote interconne	ction / with cyclic transfer / header
 update time / of the remote interconnections / with cyclical transfer / with PROFINET CBA 	1 ms
 number of remote connections to input variables / with PROFINET CBA / with cyclic transfer / maximum 	300
 number of remote connections to output variables / with cyclical transfer / with PROFINET CBA / maximum 	300
 data volume / as user data for remote interconnections with input variables / with cyclical transfer / with PROFINET CBA / maximum 	4 800 byte
— data volume / as user data for remote	4 800 byte

interconnections with output variables / with cyclical transfer / with PROFINET CBA / maximum	
— data volume / as user data for remote interconnections / with cyclical transfer / with PROFINET CBA / per connection / maximum	450 byte
performance data / PROFINET CBA / HMI variables via	PROFINET / acyclic / header
number of connectable HMI stations / for HMI	3; 2x PN OPC/1x iMap
variables / in the case of acyclic transmission / with PROFINET CBA	S, ZAT IN OT O/TA IIVIUP
 update time / of the HMI variables / in the case of acyclic transmission / with PROFINET CBA 	500 ms
 number of HMI variables / in the case of acyclic transmission / with PROFINET CBA / maximum 	600
 data volume / as user data for HMI variables / in the case of acyclic transmission / with PROFINET CBA / maximum 	9 600 byte
performance data / PROFINET CBA / PROFIBUS proxy	functionality / header
product function / with PROFINET CBA / PROFIBUS proxy functionality	Yes
 number of coupled PROFIBUS devices / with PROFIBUS functionality 	32
 data volume / with PROFIBUS proxy functionality / with PROFINET CBA / per connection / maximum 	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
	16
— adjustable for S7 communication, max.	
• total number of instances, max.	32
usable for routing	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as DP master: max. 24; X2 as DP slave (active): max. 14; X3 as PROFINET: 48 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. of which status variables, max.	30
— of which status variables, max.	30
— of which control variables, max.	14
Forcing	v
Forcing	Yes
 Forcing, variables 	Inputs, outputs
Number of variables, max.	10
Diagnostic buffer	

present	Yes
 Number of entries, max. 	500
— adjustable	No
— of which powerfail-proof	100
 Number of entries readable in RUN, max. 	499
— adjustable	Yes; From 10 to 499
— preset	10
Service data	
can be read out	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	60 °C
configuration / header	
Configuration software	
• STEP 7	Yes; V5.5 or higher
configuration / programming / header	
 Command set 	see instruction list
 Nesting levels 	8
 System functions (SFC) 	see instruction list
 System function blocks (SFB) 	see instruction list
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
Know-how protection	
 User program protection/password protection 	Yes
 Block encryption 	Yes; With S7 block Privacy
Dimensions	
Width	120 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	1 250 g

4/1/2022

6ES73183FL010AB0 Page 10/10

last modified: