## **Technical data**



SIMATIC S7-300 CPU 315-2 PN/DP, Central processing unit with 384 KB work memory, 1st interface MPI/DP 12 Mbit/s, 2nd interface Ethernet PROFINET, with 2-port switch, Micro Memory Card required

General information	
HW functional status	01
Firmware version	V3.2
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V5.5 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 power supply lines (recommendation)	2 A min.
Mains buffering	
Mains/voltage failure stored energy time	5 ms
• Repeat rate, min.	1 s
Input current	
Current consumption (rated value)	750 mA
Current consumption (in no-load operation), typ.	150 mA
Inrush current, typ.	4 A
I <sup>2</sup> t	1 A <sup>2</sup> ·s
Power loss	
Power loss, typ.	4.65 W
Memory	
Work memory	
• integrated	384 kbyte
• expandable	No
• Size of retentive memory for retentive data blocks	128 kbyte
Load memory	
• Plug-in (MMC)	Yes
• Plug-in (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.	0.05 μs
for word operations, typ.	0.09 μs
for fixed point arithmetic, typ.	0.12 μs
for floating point arithmetic, typ.	0.45 μs
CPU-blocks	
Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	
• Number, max.	1 024; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
• Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
• Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
• Size, max.	64 kbyte
• Number of free cycle OBs	1; OB 1
<ul> <li>Number of time alarm OBs</li> </ul>	1; OB 10
<ul> <li>Number of delay alarm OBs</li> </ul>	2; OB 20, 21
<ul> <li>Number of cyclic interrupt OBs</li> </ul>	4; OB 32, 33, 34, 35
<ul> <li>Number of process alarm OBs</li> </ul>	1; OB 40
<ul> <li>Number of DPV1 alarm OBs</li> </ul>	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	256
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	Z 0 to Z 7
Counting range	
— adjustable	Yes
— lower limit	0

### Present	— upper limit	999
Number	IEC counter	
Number         Unlimited (limited only by RAM capacity)           SY times           Number         256           Retentivity           — adjustable         Yes           — lower limit         0           — upper limit         255           — preset         No retentivity           Time range         —           — lower limit         10 ms           — upper limit         9990 s           IBC timer         Fresh           • present         Yes           • Type         SFB           • Number         Unlimited (limited only by RAM capacity)           Data areas and tither retentivity         SFB           • Number         All, 128 KB max.           Flag         Presentive data area in total         All, 128 KB max.           • Retentivity available         Yes, MB 0 to MB 2 047           • Retentivity available         Yes, MB 0 to MB 15           • Retentivity preset         MB 0 to MB 15           • Retentivity preset         Yes, Yes in non-retain property on DB           • Retentivity preset         Yes, Yes in non-retain property on DB           • Retentivity preset         Yes, Yes in non-retain property on DB           • Retentivity preset         Yes, Yes in	• present	Yes
Number   Page	• Type	SFB
Number   256   Retentivity   Fest   Participate   Partic	• Number	Unlimited (limited only by RAM capacity)
Recentivity	S7 times	
— adjustable	• Number	256
— Iower limit	Retentivity	
- upper limit         255           - preset         No retentivity           Time range           - lower limit         990 s           - upper limit         9990 s           IEC timer           • present         Yes           • Type         SFB           • Number         Unlimited (limited only by RAM capacity)           District retentivity           retentive data area in total         All, 128 KB max.           Flag           • Number, max.         2 048 byte           • Retentivity available         Yes; MB 0 to MB 2 047           • Retentivity preset         MB 0 to MB 15           • Number of clock memories         8: I memory byte           Datables           • Retentivity preset         Yes; via non-retain property on DB           • Retentivity preset         Yes	— adjustable	Yes
— preset   No retentivity	— lower limit	0
Time range	— upper limit	255
Hower limit	— preset	No retentivity
February   Present   Pre	Time range	
Per cent	— lower limit	10 ms
• present         Yes           • Type         SFB           • Number         Unlimited (limited only by RAM capacity)           Data areas and their retentivity           retentive data area in total         All, 128 KB max.           Flag           • Number, max.         2 048 byte           • Retentivity available         Yes; MB 0 to MB 2 047           • Retentivity preset         MB 0 to MB 15           • Number of clock memories         8; 1 memory byte           Data blocks           • Retentivity adjustable         Yes; via non-retain property on DB           • Retentivity preset         Yes         ves           • Local data         2         yes         Yes         Yes           • per priority class, max.         32 768 byte; Max. 2048 bytes per block         Address area           I/O address area         Inputs         2 048 byte           • Outputs         2 048 byte           • of which distributed         2 048 byte           — Inputs         2 048 byte           — Inputs         2 048 byte           — Outputs         2 048 byte	— upper limit	9 990 s
SFB Number Number Unlimited (limited only by RAM capacity)  Data areas and their retentivity  retentive data area in total All, 128 KB max.  Flag  Number, max. 2 048 byte Retentivity available Retentivity available Retentivity preset MB 0 to MB 15 Number of clock memories Retentivity adjustable Retentivity adjustable Retentivity adjustable Retentivity preset Yes; via non-retain property on DB Retentivity preset Per priority class, max.  2 048 byte; Max. 2048 bytes per block  Address area  Floadferss area  I O address area  I O address area  I o Inputs O utputs O which distributed  — Inputs — Inputs — Inputs — Outputs O utputs	IEC timer	
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Data areas and their retentivity  retentive data area in total  All, 128 KB max.  Flag  Number, max. 2 048 byte Retentivity available Retentivity preset Number of clock memories Number of clock memories  Retentivity adjustable Retentivity adjustable Retentivity adjustable Retentivity preset Retentivity preset Retentivity preset Pes  Audress area  I/O address area  I/O a	• Type	SFB
Flag  Number, max. 2 048 byte Retentivity available Retentivity preset Number of clock memories 8; 1 memory byte  Attentivity preset Yes; via non-retain property on DB Retentivity preset Yes Retentivity preset Yes Per priority class, max. 32 768 byte; Max. 2048 bytes per block  Address area  I/O address area  I/O address area  I/O address area  I/O address des Address area  I/O address a	• Number	Unlimited (limited only by RAM capacity)
Number, max.  Retentivity available Retentivity preset Retentivity preset Number of clock memories  Retentivity adjustable Retentivity adjustable Retentivity preset Retentivity preset Retentivity adjustable Retentivity preset Retentivity preset Retentivity preset Yes  Local data  per priority class, max.  32 768 byte; Max. 2048 bytes per block  Address area  I/O address area  I/O address area  I/O atdress dea  I puts Outputs Address A	Data areas and their retentivity	
<ul> <li>Number, max.</li> <li>Retentivity available</li> <li>Retentivity preset</li> <li>MB 0 to MB 15</li> <li>Number of clock memories</li> <li>Retentivity adjustable</li> <li>Retentivity adjustable</li> <li>Retentivity adjustable</li> <li>Retentivity preset</li> <li>Retentivity preset</li> <li>Yes; via non-retain property on DB</li> <li>Retentivity preset</li> <li>Yes</li> </ul> Local data <ul> <li>per priority class, max.</li> <li>32 768 byte; Max. 2048 bytes per block</li> </ul> Address area <ul> <li>I/O address area</li> <li>Inputs</li> <li>Outputs</li> <li>Outputs</li> <li>of which distributed</li> <li>— Inputs</li> <li>2 048 byte</li> <li>Outputs</li> <li>O 498 byte</li> <li>Outputs</li> <li>O 498 byte</li> <li>Outputs</li> <li>O 498 byte</li> </ul>	retentive data area in total	All, 128 KB max.
Retentivity available Retentivity preset Retentivity preset Number of clock memories  Retentivity adjustable Retentivity adjustable Retentivity adjustable Retentivity preset Retentivity adjustable Retenti	Flag	
<ul> <li>Retentivity preset</li> <li>Number of clock memories</li> <li>8; 1 memory byte</li> </ul> Data blocks <ul> <li>Retentivity adjustable</li> <li>Retentivity preset</li> <li>Yes</li> </ul> Local data <ul> <li>per priority class, max.</li> <li>32 768 byte; Max. 2048 bytes per block</li> </ul> Address area I/O address area <ul> <li>Inputs</li> <li>Outputs</li> <li>Outputs</li> <li>Of which distributed</li> <li>— Inputs</li> <li>— Inputs</li> <li>— Outputs</li> <li>Outputs</li> </ul>	• Number, max.	2 048 byte
<ul> <li>Number of clock memories</li> <li>Betentivity adjustable</li> <li>Retentivity preset</li> <li>Yes; via non-retain property on DB</li> <li>Retentivity preset</li> <li>Yes</li> <li>Local data</li> <li>per priority class, max.</li> <li>32 768 byte; Max. 2048 bytes per block</li> <li>Address area</li> <li>Inputs</li> <li>Outputs</li> <li>Outputs</li> <li>Of which distributed</li> <li>— Inputs</li> <li>Outputs</li> <li>O48 byte</li> </ul>	Retentivity available	Yes; MB 0 to MB 2 047
Data blocks  Retentivity adjustable Retentivity preset Yes  Yes  Local data  per priority class, max.  32 768 byte; Max. 2048 bytes per block  Address area  VO address area  I/O address area  I/O address area  2 048 byte Outputs Of which distributed  — Inputs — Inputs — Outputs  2 048 byte  2 048 byte  - Outputs  2 048 byte	• Retentivity preset	MB 0 to MB 15
Retentivity adjustable Retentivity preset Yes  Local data  per priority class, max.  32 768 byte; Max. 2048 bytes per block  Address area  I/O address area  2 048 byte Outputs Of which distributed  — Inputs — Inputs — Outputs  2 048 byte  2 048 byte  - Outputs  2 048 byte  2 048 byte	<ul> <li>Number of clock memories</li> </ul>	8; 1 memory byte
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Local data  • per priority class, max.  32 768 byte; Max. 2048 bytes per block  Address area  I/O address area  • Inputs  • Outputs  • Outputs  of which distributed  — Inputs  — Outputs  2 048 byte  2 048 byte  2 048 byte  2 048 byte	Retentivity adjustable	Yes; via non-retain property on DB
<ul> <li>◆ per priority class, max.</li> <li>32 768 byte; Max. 2048 bytes per block</li> <li>Address area</li> <li>I/O address area</li> <li>♦ Inputs</li> <li>♦ Outputs</li> <li>2 048 byte</li> <li>of which distributed</li> <li>— Inputs</li> <li>— Outputs</li> <li>2 048 byte</li> <li>2 048 byte</li> <li>2 048 byte</li> </ul>	Retentivity preset	Yes
Address area         I/O address area       2 048 byte         • Inputs       2 048 byte         • Outputs       2 048 byte         of which distributed       2 048 byte         — Inputs       2 048 byte         — Outputs       2 048 byte	Local data	
I/O address area	• per priority class, max.	32 768 byte; Max. 2048 bytes per block
● Inputs       2 048 byte         ● Outputs       2 048 byte         of which distributed       — Inputs         — Outputs       2 048 byte         — Outputs       2 048 byte	Address area	
Outputs     2 048 byte  of which distributed      — Inputs     — Outputs     2 048 byte  2 048 byte  2 048 byte	I/O address area	
of which distributed  — Inputs  — Outputs  2 048 byte  2 048 byte	• Inputs	2 048 byte
<ul><li>— Inputs</li><li>— Outputs</li><li>2 048 byte</li><li>2 048 byte</li></ul>	• Outputs	2 048 byte
— Outputs 2 048 byte	of which distributed	
	— Inputs	2 048 byte
Process image	— Outputs	2 048 byte
	Process image	
• Inputs 2 048 byte	• Inputs	2 048 byte
• Outputs 2 048 byte	• Outputs	2 048 byte
• Inputs, adjustable 2 048 byte	• Inputs, adjustable	2 048 byte
• Outputs, adjustable 2 048 byte	• Outputs, adjustable	2 048 byte
• Inputs, default 128 byte	• Inputs, default	128 byte
• Outputs, default 128 byte	Outputs, default	128 byte
Subprocess images	Subprocess images	

Expurs	<ul> <li>Number of subprocess images, max.</li> </ul>	1; With PROFINET IO, the length of the user data is limited to 1600 bytes
	Digital channels	
	• Inputs	16 384
- nf which central	— of which central	1 024
Analog channels	• Outputs	16 384
Injuris	— of which central	1 024
- of which central   256    • Outputs   1024    • Owinch central   256      Hardware configuration    Number of expansion units, max.   3    Number of Primisters   1    • via CP	Analog channels	
• Outputs	• Inputs	1 024
Hardware condiguration	— of which central	256
Number of expansion units, max.   3	• Outputs	1 024
Number of Expansion units, max.   3	— of which central	256
Number of DP masters   1	Hardware configuration	
integrated via CP  Number of operable FMs and CPs (recommended)  FM  8  CP, PP  8  CP, LAN  10  Rack  Racks, max.  Modules per rack, max.  Modules per rack, max.  **Second of the clock (real-time)  **Pes  **Tenne of day  Clock  Hardware clock (real-time)  **Pes  **Tenne of day  Clock  Hardware day synchronizable  **Backup time  Behavior of the clock following POWER-ON  Behavior of the clock following expiry of backup period  Clock continues to run with the time at which the power failure occurred  Operating hours counter  **Number In Number In Numbe	Number of expansion units, max.	3
• via CP	Number of DP masters	
Number of operable FMs and CPs (recommended)  FM 8  CP, PtP 8  CP, LAN 10  Rack  Racks, max. 4  Modules per rack, max. 8  Time of day  Clock  Hardware clock (real-time) Yes  retentive and synchronizable Yes  Backup time 6 wk; At 40 °C ambient temperature  Deviation per day, max. 10 s; Typ.: 2 s  Backup time 6 took following POWER-ON Clock continues running after POWER OFF  Behavior of the clock following expiry of backup period Clock continues to run with the time at which the power failure occurred  Operating bours counter  Number  Number  Number  Number  Number  Number 1  Number  N	• integrated	1
FM CP, PtP CP, LAN 10  Rack  Rack, max. Modules per rack, max. Modules per rack, max.  Modules per rack per	• via CP	4
CID PuP CP, LAN D Rack  Rack  Racks, max.  Modules per rack, max.  Modules per rack per	Number of operable FMs and CPs (recommended)	
Clock  Hardware clock (real-time)  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 Number ange  Range of values  Granularity  Fese  Granularity  Fese  To the Mrl, salave  Pese  Ves  Yes  Yes  Yes  Yes  Yes  Yes	• FM	8
Rack  Racks, max.  Modules per rack, max.  Modules per rack, max.  Modules per rack, max.  Reference 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 of the clock following expiry of backup period  Operating hours counter  Number of the clock following expiry of backup period  Operating hours counter  Number of the clock following expiry of backup period  Operating hours counter  Number of the clock following expiry of backup period  Operating hours counter  Number of the clock following expiry of backup period  Operating hours (when using SFC 101)  Range of values  O to 2/31 hours (when using SFC 101)  Hay  retentive  Yes; Must be restarted at each restart  Clock synchronization  Supported  Yes  O MPI, slave  Yes  O DP, master  Yes  Yes  Nes  Nes  Yes  Nes  Nes  Yes  Nes  N	• CP, PtP	8
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.   Modules per rack, max.  Modules per rack max.  Module per rack max.  Module per rack max.  Module per rack max.  Module per rack	• CP, LAN	10
Modules per rack, max.  Fine 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  Clock continues running after POWER OFF  Behavior of the clock following expiry of backup period  Operating hours counter  Number  Number  Number  Number falue  Number/Number range  Oto 2^31 hours (when using SFC 101)  Granularity  Inthespecial of the clock synchronization  Supported  Yes; Must be restarted at each restart  Clock synchronization  Yes  to MPI, master  Oto MP, slave  Yes  Test With DP slave only slave clock  Yes  Test With DP slave only slave clock  Yes  Test Mass, slave	Rack	
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 ange Range of values Granularity Fretentive Fretentive Supported Obyenatine Ob	• Racks, max.	4
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 I Number/Number range Range of values Granularity Fetentive  Clock synchronization  Supported to MPI, master To MPI, slave To DP, slave To Sandarity Tes To MAS, master Tes To May At 40 °C ambient temperature  6 wk; At 40 °C ambient temperature  Clock continues running after POWER OFF Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred  Operating hours counter  1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<ul> <li>Modules per rack, max.</li> </ul>	8
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  Clock continues running after POWER OFF  Clock continues to run with the time at which the power failure occurred  Operating hours counter  Number  Number  Number  Number/Number range  Range of values  Oto 2^31 hours (when using SFC 101)  Granularity  In retentive  Yes; Must be restarted at each restart  Clock synchronization  supported  Yes  to MPI, master  Tyes  T	Time of day	
• 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   1 • Number/Number range   0 • Range of values   0 to 2^31 hours (when using SFC 101) • Granularity   1 h • retentive   Yes; Must be restarted at each restart  Clock synchronization  • supported   Yes • to MPI, master   Yes • to MPI, slave   Yes • to DP, master   Yes; With DP slave only slave clock • in AS, master   Yes • in AS, slave   Yes	Clock	
Backup time Deviation per day, max.  Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period  Clock continues running after POWER OFF Behavior of the clock following expiry of backup period  Clock continues to run with the time at which the power failure occurred  Operating hours counter   I Number I Number Operating hours counter  I Output Operating hours counter  I Ou		
Deviation per day, max.  Behavior of the clock following POWER-ON  Behavior of the clock following expiry of backup period  Clock continues running after POWER OFF  Clock continues to run with the time at which the power failure occurred  Operating hours counter  Number  Number  Number 1  Number/Number range  Range of values  Granularity  retentive  Clock synchronization  Yes; Must be restarted at each restart  Clock synchronization  Yes  to MPI, master  Yes  to MPI, slave  Yes  To DP, master  Yes; With DP slave only slave clock  Tes  in AS, master  Yes  in AS, slave  Yes  Yes  Yes  Yes  Yes  Yes  Yes  Y	Hardware clock (real-time)	Yes
Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period  Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred  Operating hours counter  Number  Number  Number/Number range  Range of values  Granularity  Fretentive  Clock synchronization  Supported  Supported  Operating hours counter  Ves; Must be restarted at each restart  Clock synchronization  Festivate of to MPI, master  Operating hours counter  Ves  Yes  The power failure occurred  Operating hours counter  Operating hours counter  It clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred  Operating hours counter  Operating hours counter  Ves; Must be restarted at each restart  Clock synchronization  Yes  To MPI, slave  Yes  To DP, master  Yes  To DP, slave  Yes		
Behavior of the clock following expiry of backup period  Clock continues to run with the time at which the power failure occurred  Poperating hours counter  Number  Number  Number 1  Number/Number range  Range of values  O to 2^31 hours (when using SFC 101)  I h  retentive  Yes; Must be restarted at each restart  Clock synchronization  Supported  Number  Yes  To MPI, master  To MPI, slave  To DP, master  Yes  To DP, slave  To DP, s	• retentive and synchronizable	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  • in AS, master  • in AS, slave  1  O to 2^31 hours (when using SFC 101)  1 h  Yes; Must be restarted at each restart  Clock synchronization  Yes  Yes  • to MPI, blave  Yes  Yes  Yes  Yes  Yes  Yes  Yes  Y	<ul><li>retentive and synchronizable</li><li>Backup time</li></ul>	Yes 6 wk; At 40 °C ambient temperature
<ul> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>O to 2^31 hours (when using SFC 101)</li> <li>Granularity</li> <li>I h</li> <li>retentive</li> <li>Yes; Must be restarted at each restart</li> </ul> Clock synchronization <ul> <li>supported</li> <li>to MPI, master</li> <li>to MPI, slave</li> <li>to DP, master</li> <li>to DP, slave</li> <li>to DP, slave</li> <li>in AS, master</li> <li>in AS, slave</li> </ul> Yes <ul> <li>in AS, slave</li> <li>Yes</li> </ul>	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> </ul>	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s
<ul> <li>Number/Number range</li> <li>Range of values</li> <li>O to 2^31 hours (when using SFC 101)</li> <li>Granularity</li> <li>I h</li> <li>retentive</li> <li>Yes; Must be restarted at each restart</li> </ul> Clock synchronization <ul> <li>supported</li> <li>to MPI, master</li> <li>to MPI, slave</li> <li>to DP, master</li> <li>to DP, slave</li> <li>to DP, slave</li> <li>to DP, slave</li> <li>in AS, master</li> <li>in AS, master</li> <li>Yes</li> </ul>	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> </ul>	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF
<ul> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> <li>Yes; Must be restarted at each restart</li> </ul> Clock synchronization <ul> <li>supported</li> <li>to MPI, master</li> <li>to MPI, slave</li> <li>to DP, master</li> <li>to DP, slave</li> <li>to DP, slave</li> <li>in AS, master</li> <li>yes</li> </ul> Yes <ul> <li>in AS, slave</li> <li>Yes</li> </ul> Yes <ul> <li>Yes <ul> <li>Yes</li> <li>Yes</li> </ul> Yes <ul> <li>Yes <ul> <li>Yes</li> <li>Yes</li> </ul> Yes <ul> <li>Yes <ul> <li>Yes</li> </ul>  Yes <ul> <li>Yes <ul> <li>Yes</li> </ul> Yes <ul> <li>Yes <ul> <li>Yes</li> </ul>  Yes <ul> <li>Yes <ul> <li>Yes</li> </ul> </li> </ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul>	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul>	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF
<ul> <li>Granularity</li> <li>retentive</li> <li>Yes; Must be restarted at each restart</li> </ul> Clock synchronization <ul> <li>supported</li> <li>to MPI, master</li> <li>to MPI, slave</li> <li>to DP, master</li> <li>to DP, slave</li> <li>to DP, slave</li> <li>in AS, master</li> <li>in AS, slave</li> </ul> Yes <ul> <li>Yes</li> </ul> Yes <ul> <li>Yes <ul> <li>Yes</li> <li>Yes</li> </ul> Yes <ul> <li>Yes <ul> <li>Yes</li> </ul> </li> </ul></li></ul>	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul> Operating hours counter	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred
<ul> <li>retentive</li> <li>Yes; Must be restarted at each restart</li> <li>Clock synchronization</li> <li>supported</li> <li>to MPI, master</li> <li>to MPI, slave</li> <li>to DP, master</li> <li>to DP, slave</li> <li>in AS, master</li> <li>in AS, slave</li> </ul> Yes; Must be restarted at each restart Yes </td <td><ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul> Operating hours counter <ul> <li>Number</li> </ul></td> <td>Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred</td>	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul> Operating hours counter <ul> <li>Number</li> </ul>	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred
Clock synchronization  • supported • to MPI, master • to MPI, slave • to DP, master • to DP, slave • in AS, master • in AS, slave  Yes  Yes  Yes  Yes  Yes  Yes  Yes  Y	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> </ul>	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred  1 0
<ul> <li>supported</li> <li>to MPI, master</li> <li>to MPI, slave</li> <li>to DP, master</li> <li>to DP, slave only slave clock</li> <li>to DP, slave</li> <li>in AS, master</li> <li>in AS, slave</li> </ul>	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> </ul>	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred  1 0 0 to 2^31 hours (when using SFC 101)
<ul> <li>to MPI, master</li> <li>to MPI, slave</li> <li>to DP, master</li> <li>to DP, slave</li> <li>to DP, slave</li> <li>in AS, master</li> <li>in AS, slave</li> </ul> Yes  Yes  Yes  Yes  Yes  Yes  Yes  Yes	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> </ul>	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred  1 0 0 to 2^31 hours (when using SFC 101) 1 h
<ul> <li>to MPI, slave</li> <li>to DP, master</li> <li>to DP, slave only slave clock</li> <li>to DP, slave</li> <li>in AS, master</li> <li>in AS, slave</li> </ul> Yes <ul> <li>Yes</li> </ul> Yes <ul> <li>Yes <ul> <li>Yes</li> </ul> </li> </ul>	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul>	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred  1 0 0 to 2^31 hours (when using SFC 101) 1 h
<ul> <li>to DP, master</li> <li>to DP, slave</li> <li>in AS, master</li> <li>in AS, slave</li> </ul> Yes; With DP slave only slave clock Yes <ul> <li>in AS, slave</li> </ul> Yes <ul> <li>Yes</li> </ul>	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul> Clock synchronization	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred  1 0 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart
<ul> <li>to DP, slave</li> <li>in AS, master</li> <li>in AS, slave</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> </ul>	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul> Clock synchronization <ul> <li>supported</li> </ul>	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred  1 0 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart
<ul> <li>in AS, master</li> <li>in AS, slave</li> <li>Yes</li> <li>Yes</li> </ul>	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul> Clock synchronization <ul> <li>supported</li> <li>to MPI, master</li> </ul>	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred  1 0 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart  Yes Yes
• in AS, slave	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul> Clock synchronization <ul> <li>supported</li> <li>to MPI, master</li> <li>to MPI, slave</li> </ul>	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred  1 0 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart  Yes Yes Yes
	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul> Clock synchronization <ul> <li>supported</li> <li>to MPI, master</li> <li>to MPI, slave</li> <li>to DP, master</li> </ul>	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred  1 0 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart  Yes Yes Yes Yes Yes Yes Yes Yes; With DP slave only slave clock
• on Ethernet via NTP  Yes; As client	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul> Clock synchronization <ul> <li>supported</li> <li>to MPI, master</li> <li>to MPI, slave</li> <li>to DP, master</li> <li>to DP, slave</li> </ul>	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred  1 0 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart  Yes Yes Yes Yes Yes Yes Yes Yes; With DP slave only slave clock Yes
	<ul> <li>retentive and synchronizable</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Behavior of the clock following POWER-ON</li> <li>Behavior of the clock following expiry of backup period</li> </ul> Operating hours counter <ul> <li>Number</li> <li>Number/Number range</li> <li>Range of values</li> <li>Granularity</li> <li>retentive</li> </ul> Clock synchronization <ul> <li>supported</li> <li>to MPI, master</li> <li>to MPI, slave</li> <li>to DP, master</li> <li>to DP, slave</li> <li>in AS, master</li> </ul>	Yes 6 wk; At 40 °C ambient temperature 10 s; Typ.: 2 s Clock continues running after POWER OFF Clock continues to run with the time at which the power failure occurred  1 0 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart  Yes Yes Yes Yes Yes Yes Yes Yes; With DP slave only slave clock Yes Yes

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; 2 ports (switch) RJ45
Number of PROFINET interfaces	1; 2 ports (switch) RJ45
Number of RS 485 interfaces	1; Combined MPI / PROFIBUS DP
Number of RS 422 interfaces	0
1. Interface	
Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
Protocols	
• MPI	Yes
<ul> <li>PROFIBUS DP master</li> </ul>	Yes
<ul> <li>PROFIBUS DP slave</li> </ul>	Yes
Point-to-point connection	No
MPI	
• Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	No; but via CP and loadable FB
— S7 communication, as server	Yes
PROFIBUS DP master	10 MEV/-
Transmission rate, max.  Number of DR glaves, max.	12 Mbit/s
Number of DP slaves, max.  Samines	124
Services — PG/OP communication	Yes
— PG/OP communication  — Routing	Yes
— Routing  — 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
1	

— Isochronous mode	Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or
	PROFINET IO
— SYNC/FREEZE	Yes
— Activation/deactivation of DP slaves	Yes
<ul> <li>Number of DP slaves that can be simultaneously activated/deactivated, max.</li> </ul>	8
— Direct data exchange (slave-to-slave communication)	Yes; As subscriber
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 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; 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
<ul> <li>Direct data exchange (slave-to-slave communication)</li> </ul>	Yes
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
Interface type	PROFINET
Physics	Ethernet RJ45
Isolated	Yes
automatic detection of transmission rate	Yes; 10/100 Mbit/s
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	Yes
Interface types	
Number of ports	2
• integrated switch	Yes
Media redundancy	
• supported	Yes
• Switchover time on line break, typ.	200 ms; PROFINET MRP
• Number of stations in the ring, max.	50

Protocols	
• MPI	No
PROFINET IO Controller	Yes; Also simultaneously with IO-Device functionality
PROFINET IO Device	Yes; Also simultaneously with IO Controller functionality
• PROFINET CBA	Yes
PROFIBUS DP master	No
PROFIBUS DP slave	No
Open IE communication	Yes; Via TCP/IP, ISO on TCP, and UDP
Web server	Yes
PROFINET IO Controller	
• Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— S7 communication	Yes; With loadable FBs, max. configurable connections: 14, 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
— IRT	Yes
— Shared device	Yes
— Prioritized startup	Yes
- Number of IO devices with prioritized startup, max.	32
— Number of connectable IO Devices, max.	128
— Of which IO devices with IRT, max.	64
— of which in line, max.	64
— Number of IO Devices with IRT and the option "high flexibility"	128
— of which in line, max.	61
- Number of connectable IO Devices for RT, max.	128
— of which in line, max.	128
<ul> <li>Activation/deactivation of IO Devices</li> </ul>	Yes
<ul> <li>Number of IO Devices that can be simultaneously activated/deactivated, max.</li> </ul>	8
<ul> <li>— IO Devices changing during operation (partner ports), supported</li> </ul>	Yes
— Number of IO Devices per tool, max.	8
Device replacement without swap medium	Yes
— Send cycles	250 μs, 500 μs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option)
— Updating time	250 µs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, Technical Data" for more details)
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 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: 14, 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 PROFIenergy 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.	8
<ul> <li>Local port numbers used at the system end</li> </ul>	0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535
Keep-alive function, supported	Yes
Protocols	
Open IE communication	
• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
— Number of connections, max.	8
— 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.	8
— Data length, max.	32 768 byte
• UDP	Yes; via integrated PROFINET interface and loadable FBs
— Number of connections, max.	8
— Data length, max.	1 472 byte
Web server	
• supported	Yes
User-defined websites	Yes
Number of HTTP clients	5
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
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
<ul> <li>Data length of device-internal und PROFIBUS interconnections, max.</li> </ul>	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
<ul> <li>Number of outgoing interconnections</li> </ul>	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
<ul> <li>Data length of all incoming interconnections, max.</li> </ul>	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	16
• usable for PG communication	15
— reserved for PG communication	1
— adjustable for PG communication, min.	1
— adjustable for PG communication, max.	15
• usable for OP communication	15
— reserved for OP communication	1
— adjustable for OP communication, min.	1
— adjustable for OP communication, max.	15
• usable for S7 basic communication	14
— reserved for S7 basic communication	0
— adjustable for S7 basic communication, min.	0
— adjustable for S7 basic communication, max.	14
• usable for S7 communication	14
— reserved for S7 communication	0
— adjustable for S7 communication, min.	0
— adjustable for S7 communication, max.	14
a total number of instances, may	32
• total number of instances, max.	
• 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.
	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.
• usable for routing	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2
• usable for routing  S7 message functions	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.
• usable for routing  S7 message functions  Number of login stations for message functions, max.	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication
• usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes
• usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages  simultaneously active Alarm-S blocks, max.	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes
• usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages simultaneously active Alarm-S blocks, max.  Test commissioning functions  Status block Single step	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes 300
• usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages simultaneously active Alarm-S blocks, max.  Test commissioning functions  Status block Single step  Number of breakpoints	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes 300  Yes; Up to 2 simultaneously
• usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages simultaneously active Alarm-S blocks, max.  Test commissioning functions  Status block Single step	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes 300  Yes; Up to 2 simultaneously Yes
● usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages simultaneously active Alarm-S blocks, max.  Test commissioning functions  Status block Single step  Number of breakpoints  Status/control  ● Status/control variable	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes 300  Yes; Up to 2 simultaneously Yes 4
• usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages simultaneously active Alarm-S blocks, max.  Test commissioning functions  Status block  Single step  Number of breakpoints  Status/control  • Status/control  • Variables	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes 300  Yes; Up to 2 simultaneously Yes 4  Yes Inputs, outputs, memory bits, DB, times, counters
• usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages simultaneously active Alarm-S blocks, max.  Test commissioning functions  Status block Single step  Number of breakpoints  Status/control  • Status/control variable • Variables • Number of variables, max.	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes 300  Yes; Up to 2 simultaneously Yes 4  Yes Inputs, outputs, memory bits, DB, times, counters 30
• usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages simultaneously active Alarm-S blocks, max.  Test commissioning functions  Status block Single step  Number of breakpoints  Status/control  • Status/control variable • Variables • Number of variables, max. — of which status variables, max.	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes 300  Yes; Up to 2 simultaneously Yes 4  Yes Inputs, outputs, memory bits, DB, times, counters 30 30
● usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages simultaneously active Alarm-S blocks, max.  Test commissioning functions  Status block Single step  Number of breakpoints  Status/control  ● Status/control variable • Variables  ● Number of variables, max.  — of which status variables, max.  — of which control variables, max.	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes 300  Yes; Up to 2 simultaneously Yes 4  Yes Inputs, outputs, memory bits, DB, times, counters 30
• usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages simultaneously active Alarm-S blocks, max.  Test commissioning functions  Status block  Single step  Number of breakpoints  Status/control  • Status/control  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes 300  Yes; Up to 2 simultaneously Yes 4  Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14
• usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages simultaneously active Alarm-S blocks, max.  Test commissioning functions  Status block Single step  Number of breakpoints  Status/control  • Status/control variable • Variables • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  • Forcing	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes 300  Yes; Up to 2 simultaneously Yes 4  Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14
• usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages simultaneously active Alarm-S blocks, max.  Test commissioning functions  Status block Single step  Number of breakpoints  Status/control  • Status/control variable • Variables • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  • Forcing  • Forcing, variables	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes 300  Yes; Up to 2 simultaneously Yes 4  Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14  Yes Inputs, outputs
• usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages simultaneously active Alarm-S blocks, max.  Test commissioning functions  Status block Single step  Number of breakpoints  Status/control  • Status/control  • Status/control variable • Variables • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  • Forcing  • Forcing  • Forcing, variables • Number of variables, max.	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes 300  Yes; Up to 2 simultaneously Yes 4  Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14
• usable for routing  S7 message functions  Number of login stations for message functions, max.  Process diagnostic messages simultaneously active Alarm-S blocks, max.  Test commissioning functions  Status block Single step  Number of breakpoints  Status/control  • Status/control variable • Variables • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Forcing  • Forcing  • Forcing, variables	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.  16; Depending on the configured connections for PG/OP and S7 basic communication Yes 300  Yes; Up to 2 simultaneously Yes 4  Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14  Yes Inputs, outputs

• Number of entries, max.	500
— adjustable	No
— of which powerfail-proof	100; Only the last 100 entries are retained
• Number of entries readable in RUN, max.	499
— adjustable	Yes; From 10 to 499
— preset	10
Service data	
• can be read out	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	60 °C
Configuration	
Configuration software	
• STEP 7	Yes; V5.5 or higher
Programming	-
• Command set	see instruction list
• Nesting levels	8
• System functions (SFC)	see instruction list
• 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
<ul> <li>Block encryption</li> </ul>	Yes; With S7 block Privacy
Dimensions	
Width	40 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	340 g
lost modifical.	06/10/2010

06/10/2019

last modified: