## **SIEMENS**

## Data sheet

## 6ES7318-3FL01-0AB0



SIMATIC S7-300 CPU319F-3 PN/DP, CENTRAL PROCESSING UNIT WITH 2.5 MBYTE WORKING MEMORY, 1. INTERFACE MPI/DP 12MBIT/S, 2. INTERFACE DP-MASTER/SLAVE, 3. INTERFACE ETHERNET PROFINET, WITH 2 PORT SWITCH, MICRO MEMORY CARD NECESSARY

General information	
Hardware product version	01
Firmware version	V3.2
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V 5.5 or higher, Distributed Safety V 5.4 SP4
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines	2 A min.
(recommendation)	
Mains buffering	
<ul> <li>Mains/voltage failure stored energy time</li> </ul>	5 ms
• Repeat rate, min.	1 s
Input current	
Current consumption (rated value)	1 250 mA
Current consumption (in no-load operation), typ.	500 mA

P1       1.2 A*s         Power loss       44 W         Power loss, typ.       14 W         Memory       2 560 kbyte         • integrated       2 560 kbyte         • expandable       No         • Size of retentive memory for retentive data blocks       700 kbyte         Load memory       -         • Plug-in (MMC), max.       8 Mbyte         • Data management on MMC (after last programming), min.       10 y         Backup       -         • present       Yes         • without battery       Yes         for bit operations, typ.       0.004 µs         for word operations, typ.       0.014 µs         for fixed point arithmetic, typ.       0.01 µs         for fixed point arithmetic, typ.       0.04 µs         for Backup       4 096; Number range: 1 to 16000         §ize, max.       64 kbyte         FB       -         • Number, max.       4 096; Number range: 0 to 7999         • Size, max.       64 kbyte	Inrush current, typ.	4 A
Power loss, typ.       14 W         Memory       Vork memory         • integrated       2 560 kbyte         • expandable       No         • Size of retentive memory for retentive data blocks       700 kbyte         Load memory       700 kbyte         • Plug-in (MMC), max.       8 Mbyte         • Data management on MMC (after last programming), min.       8 Mbyte         Backup       10 y         • present       Yes         • without battery       Yes         for bit operations, typ.       0.004 µs         for bit operations, typ.       0.014 µs         for fixed point arithmetic, typ.       0.01 µs         for fixed point arithmetic, typ.       0.04 µs         for floating point arithmetic, typ.       0.04 µs         for Box operations, typ.       0.04 µs         for Mord operations, typ.       0.04 µs         for Mord operations, typ.       0.04 µs         for Mord operations, typ.       0.04 µs         for Word operations, typ.       0.04 µs         for Mord operations, typ.       0.04 µs         for More operations, typ.       0.04 µs         for More operations, typ.       0.04 µs         for More operations, typ.       0.04 µs	l²t	1.2 A <sup>2</sup> ·s
Power loss, typ.       14 W         Memory       Vork memory         • integrated       2 560 kbyte         • expandable       No         • Size of retentive memory for retentive data blocks       700 kbyte         Load memory       700 kbyte         • Plug-in (MMC), max.       8 Mbyte         • Data management on MMC (after last programming), min.       8 Mbyte         Backup       10 y         • present       Yes         • without battery       Yes         for bit operations, typ.       0.004 µs         for bit operations, typ.       0.014 µs         for fixed point arithmetic, typ.       0.01 µs         for fixed point arithmetic, typ.       0.04 µs         for floating point arithmetic, typ.       0.04 µs         for Box operations, typ.       0.04 µs         for Mord operations, typ.       0.04 µs         for Mord operations, typ.       0.04 µs         for Mord operations, typ.       0.04 µs         for Word operations, typ.       0.04 µs         for Mord operations, typ.       0.04 µs         for More operations, typ.       0.04 µs         for More operations, typ.       0.04 µs         for More operations, typ.       0.04 µs	Power loss	
Work memory         2 560 kbyte           • integrated         2 560 kbyte           • expandable         No           • Size of retentive memory for retentive data blocks         700 kbyte           Load memory         700 kbyte           • Plug-in (MMC)         Yes           • Plug-in (MMC), max.         8 Mbyte           • Data management on MMC (after last programmig), min.         10 y           Backup         *           • present         Yes           • without battery         Yes           for bit operations, typ.         0.004 µs           for word operations, typ.         0.01 µs           for fixed point arithmetic, typ.         0.01 µs           for floating point arithmetic, typ.         0.01 µs           for floating point arithmetic, typ.         0.04 µs           OB         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.         64 kbyte <td></td> <td>14 W</td>		14 W
Work memory         2 560 kbyte           • integrated         2 560 kbyte           • expandable         No           • Size of retentive memory for retentive data blocks         700 kbyte           Load memory         700 kbyte           • Plug-in (MMC)         Yes           • Plug-in (MMC), max.         8 Mbyte           • Data management on MMC (after last programmig), min.         10 y           Backup         *           • present         Yes           • without battery         Yes           for bit operations, typ.         0.004 µs           for word operations, typ.         0.01 µs           for fixed point arithmetic, typ.         0.01 µs           for floating point arithmetic, typ.         0.01 µs           for floating point arithmetic, typ.         0.04 µs           OB         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.         64 kbyte <td>Momon</td> <td></td>	Momon	
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programming), min.         Backup           • present         Yes           • without battery         Yes           for bit operations, typ.         0.004 μs           for word operations, typ.         0.01 μs           for fixed point arithmetic, typ.         0.01 μs           for floating point arithmetic, typ.         0.04 μs           for blocks         0.04 μs           Number of blocks (total)         4 096; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.           DB         Image: 1 to 16000           e Size, max.         64 kbyte           FB         Image: 1 to 16000           e Size, max.         64 kbyte           FC         Image: 0 to 7999           e Size, max.         64 kbyte           FC         Image: 0 to 7999           e Size, max.         64 kbyte	<ul> <li>Plug-in (MMC), max.</li> </ul>	8 Mbyte
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CPU processing times         for bit operations, typ.       0.004 µs         for word operations, typ.       0.01 µs         for fixed point arithmetic, typ.       0.01 µs         for floating point arithmetic, typ.       0.04 µs         CPU-blocks       0.04 µs         Number of blocks (total)       4 096; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.         DB       4 096; Number range: 1 to 16000         • Size, max.       64 kbyte         FB       4 096; Number range: 0 to 7999         • Size, max.       4 096; Number range: 0 to 7999         • Size, max.       4 096; Number range: 0 to 7999         • Size, max.       64 kbyte	• present	Yes
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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.         • Size, max.       4 096; Number range: 0 to 7999         • Size, max.       64 kbyte		
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FC     4 096; Number range: 0 to 7999       • Number, max.     64 kbyte	• Number, max.	4 096; Number range: 0 to 7999
• Number, max.4 096; Number range: 0 to 7999• Size, max.64 kbyte	• Size, max.	64 kbyte
• Size, max. 64 kbyte	FC	
	• Number, max.	4 096; Number range: 0 to 7999
OB	• Size, max.	64 kbyte
	OB	
• Size, max. 64 kbyte	● Size, max.	64 kbyte
• Number of free cycle OBs 1; OB 1	<ul> <li>Number of free cycle OBs</li> </ul>	1; OB 1
• Number of time alarm OBs 1; OB 10	<ul> <li>Number of time alarm OBs</li> </ul>	1; OB 10
Number of delay alarm OBs 2; OB 20, 21	<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 (OB 35: smallest settable clock pulse = 500 μs)
<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
<ul> <li>Number of isochronous mode OBs</li> </ul>	1; OB 61
<ul> <li>Number of startup OBs</li> </ul>	1; OB 100
<ul> <li>Number of asynchronous error OBs</li> </ul>	6; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO)
<ul> <li>Number of synchronous error OBs</li> </ul>	2; OB 121, 122
Nesting depth	
<ul> <li>per priority class</li> </ul>	16
<ul> <li>additional within an error OB</li> </ul>	4

Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	Z 0 to Z 7
Counting range	
— can be set	Yes
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Туре	SFB
Number	Unlimited (limited only by RAM capacity)
S7 times	
Number	2 048
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	No retentivity
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
● present	Yes
• Туре	SFB
Number	Unlimited (limited only by RAM capacity)

retentive data area in total All, max. 700 KB Fing  Number, max. 8 192 byte Number, max. 8 192 byte Retentivity available Retentivity available Number, max. 8 192 byte Number, max. 4 096; Number range: 1 to 16000 Size, max. 4 096; Number range: 1 to 16000 Size, max. 4 096; Number range: 1 to 16000 Size, max. 4 096; Number range: 1 to 16000 Size, max. 4 096; Number range: 1 to 16000 Size, max. 5 2 768 byte; Max. 2048 bytes per block Address area Size, max. 5 8 192 byte Size, max. 5 8 192 byte Size, max. 5 8 192 byte Size, max. 5 9 Process image Size, max. 5 9 Size, max.	Data areas and their retentivity	
• Number, max.     8 192 byte       • Retentivity available     Yes; from MB 0 to MB 8191       • Retentivity preset     MB 0 to MB 15       • Number of clock memories     8: 1 memory byte       Data blocks     4 096; Number range: 1 to 16000       • Size, max.     4 096; Number range: 1 to 16000       • Size, max.     64 kbyte       • Retentivity adjustable     Yes; via non-retain property on DB       • Retentivity preset     Yes       Local data     -       • per priority class, max.     32 768 byte; Max. 2048 bytes per block       Address area     -       • Inputs     8 192 byte       • Outputs     8 192 byte       • Outputs, adjustable     8 192 byte       • Outputs, default     1024       • Number of subprocess images, max.     65 536       • of which central     1024 <td></td> <td>All, max. 700 KB</td>		All, max. 700 KB
• Retentivity availableYes; from MB 0 to MB 8191• Retentivity presetMB 0 to MB 15• Number of clock memories8; 1 memory byteData blocks4096; Number range: 1 to 16000• Size, max.64 kbyte• Retentivity adjustableYes; via non-retain property on DB• Retentivity presetYesLocal data32 768 byte; Max. 2048 bytes per block• per priority class, max.32 768 byte; Max. 2048 bytes per blockAddress area100 address area• Inputs8 192 byte• Outputs8 192 byte• Outputs, adjustable8 192 byte• Outputs, default1024 byte• Outputs, default1024 byte• Outputs, default1024• Outputs, default1024• Outputs65 536- of which central1024• Outputs65 536- of which central1024• Outputs65 536- of which central1024• Outputs65 536- of which central1024 <td>Flag</td> <td></td>	Flag	
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Data blocks           • Number, max.         4 096; Number range: 1 to 16000           • Size, max.         64 kbyte           • Retentivity adjustable         Yes; via non-retain property on DB           • Retentivity adjustable         Yes           Local data	<ul> <li>Retentivity preset</li> </ul>	MB 0 to MB 15
Number, max.4 096; Number range: 1 to 16000• Size, max.64 kbyte• Retentivity adjustableYes; via non-retain property on DB• Retentivity presetYesLocal data32 768 byte; Max. 2048 bytes per blockAddress area32 768 byte; Max. 2048 bytes per block// O address area8 192 byte• Inputs8 192 byte• Outputs8 192 byte• Outputs92 byte• Outputs92 byte• Outputs92 byte• Outputs1024 byte• Outputs1024 byte• Outputs65 536- of which central1024• Outputs65 536- of which central1024• Outputs4096- of which central256- of which central256- of which central256- outputs4096	<ul> <li>Number of clock memories</li> </ul>	8; 1 memory byte
• Size, max.64 kbyte• Retentivity adjustableYes; via non-retain property on DB• Retentivity presetYesLocal data• per priority class, max.32 768 byte; Max. 2048 bytes per blockAddress areaInputs8 192 byte• Outputs8 192 byteof which distributed- Inputs8 192 byte- Outputs8 192 byteOutputs8 192 byteProcess image• Outputs, adjustable8 192 byte• Outputs, adjustable8 192 byte• Outputs, adjustable8 192 byte• Outputs, dafault1024 byte• Outputs, dafault1024 byte• Outputs, default1024 byte• Number of subprocess images, max.15 Si36- of which central1024• Outputs1024• Diputs1024• Diputs1024• Diputs1024• Outputs1024• Outputs1024 <td< td=""><td>Data blocks</td><td></td></td<>	Data blocks	
Retentivity adjustableYes; via non-retain properly on DBRetentivity presetYesLocal data	• Number, max.	4 096; Number range: 1 to 16000
Retentivity presetYesLocal data• per priority class, max.32 768 byte; Max. 2048 bytes per blockAddress areaInputs8 192 byte• Outputs8 192 byte• Outputs8 192 byteof which distributed Inputs8 192 byte- Outputs8 192 byteOutputs8 192 byteof which distributed8 192 byte- Outputs8 192 byteOutputs8 192 byteOutputs8 192 byteOutputs8 192 byteOutputs8 192 byteOutputs8 192 byteOutputs, adjustable8 192 byteOutputs, adjustable8 192 byteOutputs, default1024 byteOutputs, default1024 byteSubprocess images1: With PROFINET IO, the length of the user data is limited to 1600 bytesDigital channels1024- of which central1024- of which central1024- of which central1024- of which central256- of which central256- of which central4096- of which central4096	• Size, max.	64 kbyte
Local data         • per priority class, max.       32 768 byte; Max. 2048 bytes per block         Address area         I/O address area         • Inputs       8 192 byte         • Outputs       8 192 byte         of which distributed       -         - Inputs       8 192 byte         - Outputs       8 192 byte         Process image       8         • Inputs       8 192 byte         • Outputs       8 192 byte         • Outputs, adjustable       8 192 byte         • Outputs, default       1 024 byte         • Outputs, default       1 024 byte         • Number of subprocess images, max.       1 With PROFINET IO, the length of the user data is limited to 1600 bytes         Digital channels       65 536         - of which central <t< td=""><td><ul> <li>Retentivity adjustable</li> </ul></td><td>Yes; via non-retain property on DB</td></t<>	<ul> <li>Retentivity adjustable</li> </ul>	Yes; via non-retain property on DB
• per priority class, max.32 768 byte; Max. 2048 bytes per blockAddress areaI/O address area• Inputs8 192 byte• Outputs8 192 byte• Outputs8 192 byteof which distributed Inputs8 192 byte- Outputs8 192 byteProcess image-• Inputs, adjustable8 192 byte• Outputs, adjustable1 024 byte• Outputs, default1 024 byte• Outputs, default1 024 byte• Outputs65 536- of which central1 024• Outputs65 536- of which central1 024• Outputs1 024• Outputs65 536- of which central1 024• Outputs1 024• Outputs1 024• Outputs1 024• Outputs1 024• Outputs1 024• Outputs65 536- of which central1 024• Outputs65 536- of which central1 024• Outputs4 096- of which central256• Outputs4 096• Outputs4 096• Outputs4 096• Outputs4 096 <tr <td=""></tr>	<ul> <li>Retentivity preset</li> </ul>	Yes
Address area         I/O address area         Inputs       8 192 byte         Outputs       8 192 byte         of which distributed       -         — Inputs       8 192 byte         — Outputs       8 192 byte         Process image       -         • Inputs       8 192 byte         • Outputs       8 192 byte         Process image       -         • Inputs       8 192 byte         • Outputs, adjustable       1024 byte         • Outputs, default       1024 byte         • Outputs, default       1024 byte         Subprocess images       -         • Inputs       65 536         — of which central       1024         • Outputs       65 536         — of which central       1024         Analog channels       -         • Inputs       4 096         — of which central       256         • Outputs       4 096	Local data	
I/O address area         • Inputs       8 192 byte         • Outputs       8 192 byte         of which distributed       -         — Inputs       8 192 byte         — Outputs       8 192 byte         Process image       -         • Inputs       8 192 byte         • Outputs       8 192 byte         Process image       -         • Inputs       8 192 byte         • Outputs       8 192 byte         • Outputs, adjustable       8 192 byte         • Outputs, adjustable       8 192 byte         • Outputs, adjustable       8 192 byte         • Outputs, default       1 024 byte         • Outputs, default       1 024 byte         • Outputs, default       1 024 byte         • Number of subprocess images, max.       1; With PROFINET IO, the length of the user data is limited to 1600 bytes         Digital channels       -         • Inputs       65 536         — of which central       1 024         • Outputs       65 536         — of which central       1 024         • Inputs       65 536         — of which central       1 024         • Inputs       4 096         • Outputs	● per priority class, max.	32 768 byte; Max. 2048 bytes per block
• Inputs8 192 byte• Outputs8 192 byteof which distributed8 192 byte- Inputs8 192 byte- Outputs8 192 byteProcess image8 192 byte• Inputs8 192 byte• Outputs8 192 byte• Outputs8 192 byte• Outputs, adjustable8 192 byte• Outputs, adjustable8 192 byte• Outputs, adjustable8 192 byte• Outputs, default1 024 byte• Outputs, default1 024 byte• Outputs, default1 024 byte• Outputs65 536- of which central1 024• Outputs65 536- of which central1 024• Inputs65 536- of which central1 024• Inputs65 536- of which central1 024• Outputs65 536- of which central4 096- of which central256• Outputs4 096- of which central256• Outputs60 6 <td>Address area</td> <td></td>	Address area	
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Inputs8 192 byte Outputs8 192 byteProcess image8 192 byte• Inputs8 192 byte• Outputs8 192 byte• Outputs, adjustable8 192 byte• Outputs, adjustable8 192 byte• Outputs, default1 024 byte• Outputs, default1 024 byte• Outputs, default1 024 byte• Outputs of subprocess images, max.1; With PROFINET IO, the length of the user data is limited to 160 bytesDigital channels1 024- of which central1 024• Outputs65 536- of which central1 024• Inputs65 536- of which central1 024• Outputs65 536- of which central1 024• Inputs65 536- of which central1 024• Outputs65 536- of which central1 024• Inputs4 096- of which central4 096- of which central4 096- of which central4 096	Outputs	8 192 byte
- Outputs8 192 byteProcess image8 192 byte• Inputs8 192 byte• Outputs8 192 byte• Inputs, adjustable8 192 byte• Outputs, adjustable8 192 byte• Outputs, default1 024 byte• Outputs65 536- of which central1 024• Outputs65 536- of which central1 024• Outputs65 536- of which central1 024• Inputs65 536- of which central1 024• Inputs4 096- of which central4 096• Outputs4 096	of which distributed	
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• Outputs, default1 024 byteSubprocess images1; With PROFINET IO, the length of the user data is limited to 1600 bytes• Number of subprocess images, max.1; With PROFINET IO, the length of the user data is limited to 1600 bytesDigital channels1• Inputs65 536- of which central1 024• Outputs65 536- of which central1 024• Inputs65 536- of which central1 024• Inputs65 536- of which central1 024• Outputs65 536- of which central1 024• Outputs65 536• Outputs65 536• Outputs65 536• Outputs65 536• Outputs4 096• Outputs4 096• Outputs4 096	<ul> <li>Outputs, adjustable</li> </ul>	8 192 byte
Subprocess images1; With PROFINET IO, the length of the user data is limited to 1600 bytesDigital channels65 536- of which central1024Outputs65 536- of which central1024Analog channels1024Inputs65 536- of which central204Outputs65 536- of which central204Analog channels204• Inputs4 096- of which central4 096- of which central4 096- of which central4 096	<ul> <li>Inputs, default</li> </ul>	1 024 byte
• Number of subprocess images, max.1; With PROFINET IO, the length of the user data is limited to 1600 bytesDigital channels65 536- of which central1 024• Outputs65 536- of which central1 024• Outputs1 024- of which central1 024Analog channels4 096- of which central256• Outputs4 096	<ul> <li>Outputs, default</li> </ul>	1 024 byte
Inputs1600 bytesDigital channels65 536- of which central1 024• Outputs65 536- of which central1 024• Outputs1 024- of which central1 024Analog channels4 096- of which central256• Outputs4 096	Subprocess images	
• Inputs       65 536         - of which central       1 024         • Outputs       65 536         - of which central       1 024         Analog channels       1 024         • Inputs       4 096         - of which central       256         • Outputs       4 096	<ul> <li>Number of subprocess images, max.</li> </ul>	
of which central1 024• Outputs65 536 of which central1 024Analog channels1 024• Inputs4 096 of which central256• Outputs4 096	Digital channels	
• Outputs65 536- of which central1 024Analog channels4 096- of which central256- of which central4 096	• Inputs	65 536
of which central1 024Analog channels4 096 of which central256- Outputs4 096	— of which central	1 024
Analog channels       • Inputs     4 096       - of which central     256       • Outputs     4 096	Outputs	65 536
Inputs         4 096           — of which central         256           • Outputs         4 096	— of which central	1 024
— of which central     256       • Outputs     4 096	Analog channels	
• Outputs 4 096	• Inputs	4 096
	— of which central	256
- of which central 256	Outputs	4 096
	— of which central	256

Hardware configuration	
Number of DP masters	
<ul> <li>integrated</li> </ul>	2
• via CP	4
Number of operable FMs and CPs (recommended)	
• FM	8
• CP, point-to-point	8
• CP, LAN	10
Rack	
<ul> <li>Racks, max.</li> </ul>	4
<ul> <li>Modules per rack, max.</li> </ul>	8

## Time of day

Clock	
<ul> <li>Hardware clock (real-time clock)</li> </ul>	Yes
<ul> <li>retentive and synchronizable</li> </ul>	Yes
Backup time	6 wk; At 40 °C ambient temperature
<ul> <li>Deviation per day, max.</li> </ul>	10 s; Typ.: 2 s
<ul> <li>Behavior of the clock following POWER-ON</li> </ul>	Clock continues running after POWER OFF
<ul> <li>Behavior of the clock following expiry of backup period</li> </ul>	Clock continues to run with the time at which the power failure occurred
Operating hours counter	
Number	4
Number/Number range	0 to 3
<ul> <li>Range of values</li> </ul>	0 to 2^31 hours (when using SFC 101)
Granularity	1 hour
• retentive	Yes; Must be restarted at each restart
Clock synchronization	
supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
• to DP, master	Yes; With DP slave only slave clock
• to DP, slave	Yes
• in AS, master	Yes
● in AS, slave	Yes
<ul> <li>on Ethernet via NTP</li> </ul>	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	4
Number of industrial Ethernet interfaces	1
Number of RS 485 interfaces	2
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.	150 mA
Functionality	
• MPI	Yes
PROFIBUS DP master	Yes
PROFIBUS DP slave	Yes; A DP slave at both interfaces simultaneously is not possible
<ul> <li>Point-to-point connection</li> </ul>	No
MPI	
• Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	No; but via CP and loadable FB
— S7 communication, as server	Yes
DP master	
• Transmission rate, max.	12 Mbit/s
<ul> <li>Number of DP slaves, max.</li> </ul>	124
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	Yes; I blocks only
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance mode support	Yes
— Isochronous mode	No
- SYNC/FREEZE	Yes
- STNO/ REEZE	

<ul> <li>Activation/deactivation of DP slaves</li> </ul>	Yes
<ul> <li>— Number of DP slaves that can be</li> </ul>	8
simultaneously activated/deactivated, max.	
— Direct data exchange (slave-to-slave	Yes; As subscriber
communication)	
— 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
DP slave	
• Transmission rate, max.	12 Mbit/s
<ul> <li>automatic baud rate search</li> </ul>	Yes; only with passive interface
<ul> <li>Address area, max.</li> </ul>	32
<ul> <li>User data per address area, max.</li> </ul>	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)	
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface Interface type	Integrated RS 485 interface
Physics	RS 485
- Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
Functionality	
• MPI	No
PROFINET IO Controller	No
PROFINET IO Device	No
PROFINET TO Device     PROFINET CBA	No
	Yes
PROFIBUS DP master	

PROFIBUS DP slave	Yes; A DP slave at both interfaces simultaneously is not possible
Open IE communication	No
Web server	No
DP master	
• Transmission rate, max.	12 Mbit/s
<ul> <li>Number of DP slaves, max.</li> </ul>	124
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	Yes; I blocks only
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes; Connection configured on one side only
— Equidistance	Yes
— Isochronous mode	Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously)
- 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
<ul> <li>Direct data exchange (slave-to-slave communication)</li> </ul>	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
DP slave	
• GSD file	The latest GSD file is available at: http://www.siemens.com/profibus-gsd
<ul> <li>Transmission rate, max.</li> </ul>	12 Mbit/s
<ul> <li>automatic baud rate search</li> </ul>	Yes; only with passive interface
<ul> <li>Address area, max.</li> </ul>	32
<ul> <li>User data per address area, max.</li> </ul>	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
<ul> <li>— Direct data exchange (slave-to-slave communication)</li> </ul>	Yes
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte

3. 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	
<ul> <li>Number of ports</li> </ul>	2
<ul> <li>integrated switch</li> </ul>	Yes
Media redundancy	
<ul> <li>supported</li> </ul>	Yes
<ul> <li>Switchover time on line break, typ.</li> </ul>	200 ms; PROFINET MRP
<ul> <li>Number of stations in the ring, max.</li> </ul>	50
Functionality	
• MPI	No
<ul> <li>PROFINET IO Controller</li> </ul>	Yes; Also simultaneously with I-Device functionality
PROFINET IO Device	Yes; Also simultaneously with IO Controller functionality
PROFINET CBA	Yes
<ul> <li>PROFIBUS DP master</li> </ul>	No
<ul> <li>PROFIBUS DP slave</li> </ul>	No
Open IE communication	Yes; Via TCP/IP, ISO on TCP, and UDP
• Web server	Yes
— Number of HTTP clients	5
PROFINET IO Controller	
Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes
	Yes
- Routing	
— S7 communication	Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32

- Open IE communication     Yes: Via TCP/IP, ISO on TCP, and UDP       - Shared device     Yes       - Prioritized startup     Yes       - Number of IO devices with prioritized     32       startup, max.     256       - Of which in line, max.     64       - of which in line, max.     64       - Number of IO Devices with IRT and the     256       option 'high flexibility'     61       - Number of IO Devices with IRT and the     256       option 'high flexibility'     61       - Number of IO Devices for RT,     256       - Advication/deactivation of IO Devices     Yes       - Advication/deactivation of IO Devices     Yes       - Number of IO Devices that can be     8       simultaneously activated/deactivated, max.     7       - Number of IO Devices per tool, max.     8       - Device replacement without swap modium     Yes       - Device replacement without swap modium     Yes       - Updating time     250 up. 500 up. 51 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option)       - Updating time     250 up. 500 up. 51 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option)       - Updating time     250 up. 500 up. 51 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option)       - Updating time     250 up. 500 up. 51 ms; 2 ms, 4 ms (not in the case of IRT with "high flexib	— Isochronous mode	Yes; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not simultaneously)
Prioritzed startup       Yes         Number of IO devices with prontized       32         startup, max.       255         Of which IO devices with IRT, max.       64         of which Io devices with IRT and the       256         option 'ight flexibility'       61         of which in line, max.       61         of which in line, max.       61         Number of connectable IO Devices for RT.       256         of which in line, max.       256         Activation/deactivation of IO Devices       Yes         Io Devices that can be       8         simultaneously activated/deactivated, 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 fiexibility" option)         Updating time       250 µs. 500 µs. 1 ms: 2 ms. 4 ms (not in the case of IRT with "high fiexibility" option)         Updating time       250 µs. 500 µs. 1 ms: 2 ms. 4 ms (not in the case of IRT with "high fiexibility" option)	— Open IE communication	Yes; Via TCP/IP, ISO on TCP, and UDP
- Number of IO devices with prioritized startup, max.       32         - Number of connectable IO Devices, max.       256         - Of which IO devices with IRT, max.       64         - of which IO devices with IRT and the option Thigh flexibility"       256         - of which IO Devices with IRT and the option Thigh flexibility"       61         - Number of connectable IO Devices for RT, max.       256         - of which in line, max.       256         - Activation/deactivation of IO Devices       Yes         - IO Devices that can be simultaneously activated/deactivated, max.       8         - IO Devices port 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 "57-300 CPU 31xC and CPU 31x, Technical Data" for more details)         Address area       8 kbyte         - Inputs, max.       8 kbyte         - Outputs, max.       8 kbyte         - Outputs, max.       8 kbyte         - User data consistency, max.       8 kbyte<	— Shared device	Yes
startup, max.  Number of connectable IO Devices, max. Of which IO devices with IRT, max.  of which In line, max.  So which in line, max.  of which in	— Prioritized startup	Yes
startup, max.       256         — Number of connectable IO Devices, max.       64         — of which IO devices with IRT, max.       64         — of which In Ine, max.       64         — Number of IO Devices with IRT and the option "high flexibility"       61         — of which In Ine, max.       61         — Number of IO Devices for RT, max.       256         — of which In Ine, max.       256         — of which IO Devices that can be simultaneously activated/deactivated, max.       100 Devices that can be simultaneously activated/deactivated, max.         — IO Devices that can be simultaneously activated/deactivated, max.       8         — Number of IO Devices that can be simultaneously activated/deactivated/max.       8         — Number of IO Devices that can be simultaneously activated/deactivated/max.       8         — Device replacement without swap medium the case of IRT with Thigh flexibility" option)       250 us to 512 ms (depending on the operati	- Number of IO devices with prioritized	32
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"256 of which in line, max.61 of which in line, max.256 of which in line, max.8 of boxices per tool, max.8 Number of IO Devices per tool, max.8 Device replacement without swap mediumYes Device replacement without swap mediumYes Send cycles250 µs, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high fiexibility" option) Updating time250 µs toor 12 x/C and CPU 31 x, Technical Data" for more details Number of IO Devices8 Send cycles8 Duputs, max.8 kbyte Updata consistency, max.1024 byte Device	startup, max.	
- of which in line, max.       64         - Number of IO Devices with IRT and the option "high flexibility"       256         - of which in line, max.       61         - of which in line, max.       526         - of which in line, max.       256         - Activation/deactivated of IO Devices       Yes         - Number of IO Devices per tool, max.       8         - Device replacement without swap medium       Yes         - Device replacement without swap medium       Yes         - Send cycles       250 µs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, Technical Data" for more dealis/s         Address area       8 kbyte         - Inputs, max.       8 kbyte         - Outputs, max.       1024 byte         PROFINET IO Device       Yes         - PG/OP communication       Yes         - PG/OP communication       Yes; with loadable FBs, max. configurable connections: 16, max. number of instanc	- Number of connectable IO Devices, max.	256
- Number of ID Devices with IRT and the option "high flexibility"         256           - of which in line, max.         61           - Number of connectable IO Devices for RT, max.         256           - of which in line, max.         256           - of which in line, max.         256           - Activation/deactivation of IO Devices         Yes           - Activation/deactivation of IO Devices that can be simultaneously activated/deactivated, max.         8           - Number of IO Devices that can be         8           - Number of IO Devices per tool, max.         8           - 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 dealisis           Address area         8 kbyte           - loputs, max.         8 kbyte           - User data consistency, max.         1024 byte           PROFINET IO Device         Yes           - PG/OP communication         Yes           - PG/OP communication         Yes           - S7 communication         Yes           - Isochronous mode	— Of which IO devices with IRT, max.	64
option "high flexibility"61- of which in line, max.61- Number of connectable IO Devices for RT, max.256- of which in line, max.256- Activation/deactivation of IO DevicesYes- Number of IO Devices that can be simultaneously activated/deactivated, max.8- IO Devices changing during operation (partner ports), supportedYes- Number of IO Devices per tool, max.8- Device replacement without swap medium flexibility" option)Yes- Updating time250 µs, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option)- Updating time250 µs to 512 ms (depending on the operating mode, see Manual "Sr-300 CPU 31x. C and CPU 31x, Technical Data" for more details)Address area8 kbyte- Inputs, max.8 kbyte- Outputs, max.8 kbyte- Device24 bytePROFINET IO Device124 bytePROFINET IO Device124 byteIPROFINET IO Device124 byte<	— of which in line, max.	64
- Number of connectable IO Devices for RT, max.       256         - of which in line, max.       256         - Activation/deactivation of IO Devices       Yes         - Number of IO Devices that can be simultaneously activated/deactivated, max.       8         - IO Devices changing during operation (partner ports), supported       Yes         - Number of IO Devices per tool, max.       8         - Devices changing during operation (partner ports), supported       Yes         - Number of IO Devices per tool, max.       8         - Device replacement without swap medium - Send cycles       Yes         - Send cycles       250 µs, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high frexibility" option)         - Updating time       250 µs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, Technical Data" for more details)         Address area       -         - Inputs, max.       8 kbyte         - Updating time       1024 byte         PROFINET IO Device       -         - PG/OP communication       Yes         - PG/OP communication       Yes         - Sortores       -         - Sortores       -         - Sortores       -         - Sortores       -         - Sortores       - </td <td></td> <td>256</td>		256
max.256- of which in line, max.256- Activation/deactivation of IO DevicesYes- Number of IO Devices that can be simultaneously activated/deactivated, max.8- IO Devices changing during operation (partner ports), supportedYes- Number of IO Devices per tool, max.8- Device replacement without swap medium - Send cyclesYes- Send cycles250 µs, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high frexibility" option)- Updating time250 µs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, Technical Data" for more details)Address area8 kbyte- Inputs, max.8 kbyte- Outputs, max.8 kbyte- User data consistency, max.1024 bytePROFINET IO DeviceYes- PG/OP communicationYes- S7 communicationYes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32- Isochronous modeNo- Open IE communicationYes; Viat TCP/IP, ISO on TCP, and UDP- IRTYes; With SFB 73 / 74 prepared for loadable PROFlenergy	— of which in line, max.	61
- of which in line, max.256- Activation/deactivation of IO DevicesYes- Number of IO Devices that can be simultaneously activated/deactivated, max.8- IO Devices changing during operation (partner ports), supportedYes- Number of IO Devices per tool, max.8- Device replacement without swap mediumYes- Send cycles250 µs, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option)- Updating time250 µs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, Technical Data" for more details)Address area8 kbyte- Inputs, max.8 kbyte- Outputs, max.8 kbyte- Updating time1024 bytePROFINET IO DeviceYes- Services PG/OP communicationYes- S7 communicationYes- Isochronous modeNo- Isochronous modeNo- Outpit E communicationYes; Via TCP/IP, ISO on TCP, and UDP- IRTYes- PROFINETERYes	— Number of connectable IO Devices for RT,	256
<ul> <li>Activation/deactivation of IO Devices</li> <li>Activation/deactivation of IO Devices that can be</li> <li>Number of IO Devices that can be</li> <li>simultaneously activated/deactivated, max.</li> <li>IO Devices changing during operation (partner ports), supported</li> <li>Number of IO Devices per tool, max.</li> <li>Device replacement without swap medium</li> <li>Send cycles</li> <li>Send cycles</li> <li>Send cycles</li> <li>Updating time</li> <li>Yes</li> <li>Updating time</li> <li>So up to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, Technical Data" for more details)</li> <li>Address area</li> <li>Outputs, max.</li> <li>Ats kbyte</li> <li>Outputs, max.</li> <li>Kbyte</li> <li>User data consistency, max.</li> <li>1024 byte</li> <li>PROFINET IO Devices</li> <li>Services</li> <li>Services</li></ul>	max.	
<ul> <li>Number of IO Devices that can be simultaneously activated/deactivated, max.</li> <li>IO Devices changing during operation (partner ports), supported</li> <li>Number of IO Devices per tool, max.</li> <li>Device replacement without swap medium</li> <li>Send cycles</li> <li>Send cycles</li> <li>Updating time</li> <li>Send cycles</li> <li>Updating time</li> <li>Send cycles</li> <li>Updating time</li> <li>Send cycles</li> <li>Send cycles</li> <li>Send cycles</li> <li>Updating time</li> <li>Send cycles</li> <li>Send cycles</li> <li>Updating time</li> <li>Send cycles</li> <li>Send cycles, max.</li> <li>Send cycle, max.</li></ul>	— of which in line, max.	256
simultaneously activated/deactivated, max.       IO Devices changing during operation (partner ports), supported       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       8 kbyte         - Inputs, max.       8 kbyte         - User data consistency, max.       8 kbyte         - User data consistency, max.       1024 byte         PROFINET IO Device         Services         - PG/OP communication       Yes         - Routing       Yes         - S7 communication       Yes         - Isochronous mode       No         - Open IE communication       Yes; Via TCP/IP, ISO on TCP, and UDP         - IRT       Yes         - Ropelinergy       Yes; With SFB 73 / 74 prepared for loadable PROFIenergy	<ul> <li>Activation/deactivation of IO Devices</li> </ul>	Yes
(partner ports), supported8- Number of IO Devices per tool, max.8- Device replacement without swap mediumYes- Send cycles250 µs, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option)- Updating time250 µs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, Technical Data" for more details)Address area8 kbyte- Inputs, max.8 kbyte- Outputs, max.8 kbyte- User data consistency, max.1 024 bytePROFINET IO DeviceServices- PG/OP communicationYes- RoutingYes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32- Isochronous modeNo- Open IE communicationYes; Via TCP/IP, ISO on TCP, and UDP- IRTYes; With SFB 73 / 74 prepared for loadable PROFInergy		8
- Device replacement without swap mediumYes- Send cycles250 µs, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option)- Updating time250 µs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, Technical Data" for more details)Address area Inputs, max.8 kbyte- Outputs, max.8 kbyte- User data consistency, max.1 024 bytePROFINET IO DeviceServices- RoutingYes- S7 communicationYes- S7 communicationYes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32- Isochronous modeNo- Open IE communicationYes; Via TCP/IP, ISO on TCP, and UDP- IRTYes- PROFInergyYes; With SFB 73 / 74 prepared for loadable PROFInergy		Yes
Send cycles250 µs, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option) Updating time250 µs, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option) Updating time250 µs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, Technical Data" for more details)Address area Inputs, max.8 kbyte Outputs, max.8 kbyte User data consistency, max.1 024 bytePROFINET IO DeviceServices PG/OP communicationYes RoutingYes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 Isochronous modeNo Open IE communicationYes; Via TCP/IP, ISO on TCP, and UDP IRTYes; With SFB 73 / 74 prepared for loadable PROFIenergy	— Number of IO Devices per tool, max.	8
flexibility" option) Updating time250 µs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, Technical Data" for more details)Address area Inputs, max.8 kbyte Outputs, max.8 kbyte User data consistency, max.1 024 bytePROFINET IO DeviceServices RoutingYes S7 communicationYes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 Isochronous modeNo Open IE communicationYes; Via TCP/IP, ISO on TCP, and UDP IRTYes PROFlenergyYes; With SFB 73 / 74 prepared for loadable PROFlenergy	<ul> <li>Device replacement without swap medium</li> </ul>	Yes
"S7-300 CPU 31xC and CPU 31x, Technical Data" for more details)         Address area         - Inputs, max.       8 kbyte         - Outputs, max.       8 kbyte         - User data consistency, max.       1 024 byte         PROFINET IO Device       1 024 byte         Services       -         - Routing       Yes         - S7 communication       Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32         - Isochronous mode       No         - Open IE communication       Yes; Via TCP/IP, ISO on TCP, and UDP         - IRT       Yes         - PROFIenergy       Yes; With SFB 73 / 74 prepared for loadable PROFIenergy	— Send cycles	
Inputs, max.8 kbyte Outputs, max.8 kbyte User data consistency, max.1 024 bytePROFINET IO DeviceServices PG/OP communicationYes RoutingYes S7 communicationYes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 Isochronous modeNo Open IE communicationYes; Via TCP/IP, ISO on TCP, and UDP IRTYes PROFIenergyYes; With SFB 73 / 74 prepared for loadable PROFIenergy	— Updating time	"S7-300 CPU 31xC and CPU 31x, Technical Data" for more
- Outputs, max.8 kbyte- User data consistency, max.1 024 bytePROFINET IO DeviceServicesYes- PG/OP communicationYes- RoutingYes- S7 communicationYes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32- Isochronous modeNo- Open IE communicationYes; Via TCP/IP, ISO on TCP, and UDP- IRTYes- PROFIenergyYes; With SFB 73 / 74 prepared for loadable PROFIenergy	Address area	
- User data consistency, max.       1 024 byte         PROFINET IO Device       PROFINET OP communication         Services       - PG/OP communication         - PG/OP communication       Yes         - Routing       Yes         - S7 communication       Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32         - Isochronous mode       No         - Open IE communication       Yes; Via TCP/IP, ISO on TCP, and UDP         - IRT       Yes         - PROFIenergy       Yes; With SFB 73 / 74 prepared for loadable PROFIenergy	— Inputs, max.	8 kbyte
PROFINET IO Device         Services         - PG/OP communication       Yes         - Routing       Yes         - S7 communication       Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32         - Isochronous mode       No         - Open IE communication       Yes; Via TCP/IP, ISO on TCP, and UDP         - IRT       Yes         - PROFlenergy       Yes; With SFB 73 / 74 prepared for loadable PROFlenergy	— Outputs, max.	8 kbyte
Services         - PG/OP communication       Yes         - Routing       Yes         - S7 communication       Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32         - Isochronous mode       No         - Open IE communication       Yes; Via TCP/IP, ISO on TCP, and UDP         - IRT       Yes         - PROFlenergy       Yes; With SFB 73 / 74 prepared for loadable PROFlenergy	— User data consistency, max.	1 024 byte
PG/OP communication       Yes         Routing       Yes         S7 communication       Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32         Isochronous mode       No         Open IE communication       Yes; Via TCP/IP, ISO on TCP, and UDP         IRT       Yes         PROFlenergy       Yes; With SFB 73 / 74 prepared for loadable PROFlenergy	PROFINET IO Device	
- RoutingYes- S7 communicationYes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32- Isochronous modeNo- Open IE communicationYes; Via TCP/IP, ISO on TCP, and UDP- IRTYes- PROFlenergyYes; With SFB 73 / 74 prepared for loadable PROFlenergy	Services	
- S7 communication       Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32         - Isochronous mode       No         - Open IE communication       Yes; Via TCP/IP, ISO on TCP, and UDP         - IRT       Yes         - PROFlenergy       Yes; With SFB 73 / 74 prepared for loadable PROFlenergy	— PG/OP communication	Yes
number of instances: 32       - Isochronous mode     No       - Open IE communication     Yes; Via TCP/IP, ISO on TCP, and UDP       - IRT     Yes       - PROFIenergy     Yes; With SFB 73 / 74 prepared for loadable PROFIenergy	— Routing	Yes
- Open IE communication       Yes; Via TCP/IP, ISO on TCP, and UDP         - IRT       Yes         - PROFlenergy       Yes; With SFB 73 / 74 prepared for loadable PROFlenergy	— S7 communication	-
- IRT     Yes       - PROFlenergy     Yes; With SFB 73 / 74 prepared for loadable PROFlenergy	— Isochronous mode	No
— PROFlenergy Yes; With SFB 73 / 74 prepared for loadable PROFlenergy	— Open IE communication	Yes; Via TCP/IP, ISO on TCP, and UDP
<b>6</b> 7	— IRT	Yes
	— PROFlenergy	

— Shared device	Yes
— Number of IO Controllers with shared	2
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	
<ul> <li>Number of connections, max.</li> </ul>	32
<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
<ul> <li>Keep-alive function, supported</li> </ul>	Yes
Isochronous mode	
Isochronous operation (application synchronized up	Yes; Via 2nd PROFIBUS DP or PROFINET interface
to terminal)	
Communication functions	
Communication functions PG/OP communication	Yes
PG/OP communication	Yes
PG/OP communication Data record routing	
PG/OP communication Data record routing Global data communication • supported	Yes
PG/OP communication Data record routing Global data communication	Yes
PG/OP communication Data record routing Global data communication • supported • Number of GD loops, max. • Number of GD packets, max.	Yes Yes 8
PG/OP communication Data record routing Global data communication • supported • Number of GD loops, max. • Number of GD packets, max. • Number of GD packets, transmitter, max.	Yes Yes 8 8
PG/OP communication Data record routing Global data communication • supported • Number of GD loops, max. • Number of GD packets, max. • Number of GD packets, transmitter, max. • Number of GD packets, receiver, max.	Yes Yes 8 8 8 8
PG/OP communication Data record routing Global data communication • supported • Number of GD loops, max. • Number of GD packets, max. • Number of GD packets, transmitter, max. • Number of GD packets, receiver, max. • Size of GD packets, max.	Yes Yes 8 8 8 8 8
PG/OP communication Data record routing Global data communication • supported • Number of GD loops, max. • Number of GD packets, max. • Number of GD packets, transmitter, max. • Number of GD packets, receiver, max.	Yes Yes 8 8 8 8 8 8 8 8 22 byte
PG/OP communication Data record routing Global data communication • supported • Number of GD loops, max. • Number of GD packets, max. • Number of GD packets, transmitter, max. • Number of GD packets, receiver, max. • Size of GD packets, max. • Size of GD packets, max.	Yes Yes 8 8 8 8 8 8 8 8 22 byte
PG/OP communication         Data record routing         Global data communication         • supported         • Number of GD loops, max.         • Number of GD packets, max.         • Number of GD packets, max.         • Number of GD packets, transmitter, max.         • Number of GD packets, receiver, max.         • Size of GD packets, max.         • Size of GD packet (of which consistent), max.         S7 basic communication	Yes Yes 8 8 8 8 8 22 byte 22 byte
PG/OP communication         Data record routing         Global data communication         • supported         • Number of GD loops, max.         • Number of GD packets, max.         • Number of GD packets, transmitter, max.         • Number of GD packets, transmitter, max.         • Number of GD packets, receiver, max.         • Size of GD packets, max.         • Size of GD packet (of which consistent), max.         S7 basic communication         • supported	Yes Yes 8 8 8 8 8 8 22 byte 22 byte Yes
PG/OP communication         Data record routing         Global data communication         • supported         • Number of GD loops, max.         • Number of GD packets, max.         • Number of GD packets, max.         • Number of GD packets, transmitter, max.         • Number of GD packets, receiver, max.         • Size of GD packets, max.         • Size of GD packets, max.         • Size of GD packet (of which consistent), max.         S7 basic communication         • supported         • User data per job, max.	Yes Yes 8 8 8 8 8 8 22 byte 22 byte 22 byte Yes 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with
PG/OP communication         Data record routing         Global data communication         • supported         • Number of GD loops, max.         • Number of GD packets, max.         • Number of GD packets, max.         • Number of GD packets, transmitter, max.         • Number of GD packets, receiver, max.         • Size of GD packets, max.         • Size of GD packets, max.         • Size of GD packet (of which consistent), max.         S7 basic communication         • supported         • User data per job, max.         • User data per job (of which consistent), max.	Yes Yes 8 8 8 8 8 8 22 byte 22 byte 22 byte Yes 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with
PG/OP communication         Data record routing         Global data communication         • supported         • Number of GD loops, max.         • Number of GD packets, max.         • Number of GD packets, max.         • Number of GD packets, transmitter, max.         • Number of GD packets, transmitter, max.         • Number of GD packets, receiver, max.         • Size of GD packets, max.         • Size of GD packet (of which consistent), max.         S7 basic communication         • supported         • User data per job, max.         • User data per job (of which consistent), max.         S7 communication	Yes Yes 8 8 8 8 22 byte 22 byte Yes 76 byte 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)
PG/OP communication         Data record routing         Global data communication         • supported         • Number of GD loops, max.         • Number of GD packets, max.         • Number of GD packets, max.         • Number of GD packets, transmitter, max.         • Number of GD packets, receiver, max.         • Size of GD packets, max.         • Size of GD packets, max.         • Size of GD packet (of which consistent), max.         S7 basic communication         • supported         • User data per job, max.         • User data per job (of which consistent), max.         S7 communication         • supported         • User data per job (of which consistent), max.	Yes Yes 8 8 8 8 22 byte 22 byte 22 byte Yes 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server) Yes

• User data per job, max.	See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)
S5 compatible communication	
• supported	Yes; via CP and loadable FC
Open IE communication	
• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
— Number of connections, max.	32
<ul> <li>— Data length for connection type 01H, max.</li> </ul>	1 460 byte
<ul> <li>— Data length for connection type 11H, max.</li> </ul>	32 768 byte
• ISO-on-TCP (RFC1006)	Yes; via integrated PROFINET interface and loadable FBs
— Number of connections, max.	32
— Data length, max.	32 768 byte
• UDP	Yes; via integrated PROFINET interface and loadable FBs
— Number of connections, max.	32
— Data length, max.	1 472 byte
Web server	
• supported	Yes
Number of HTTP clients	5
<ul> <li>User-defined websites</li> </ul>	Yes
PROFINET CBA (at set setpoint communication load)	
<ul> <li>Setpoint for the CPU communication load</li> </ul>	20 %
<ul> <li>Number of remote interconnection partners</li> </ul>	32
<ul> <li>Number of functions, master/slave</li> </ul>	50
<ul> <li>Total of all master/slave connections</li> </ul>	3 000
<ul> <li>Data length of all incoming connections master/slave, max.</li> </ul>	24 000 byte
<ul> <li>Data length of all outgoing connections master/slave, max.</li> </ul>	24 000 byte
<ul> <li>Number of device-internal and PROFIBUS interconnections</li> </ul>	1 000
<ul> <li>Data length of device-internal und PROFIBUS interconnections, max.</li> </ul>	8 000 byte
<ul> <li>Data length per connection, max.</li> </ul>	1 400 byte
Remote interconnections with acyclic transmission	
<ul> <li>— Sampling frequency: Sampling time, min.</li> </ul>	200 ms
<ul> <li>— Number of incoming interconnections</li> </ul>	100
<ul> <li>— Number of outgoing interconnections</li> </ul>	100
<ul> <li>— Data length of all incoming interconnections, max.</li> </ul>	3 200 byte
<ul> <li>Data length of all outgoing interconnections, max.</li> </ul>	3 200 byte
— Data length per connection, max.	1 400 byte
Remote interconnections with cyclic transmission	

— Transmission frequency: Transmission	1 ms
interval, min.	
<ul> <li>Number of incoming interconnections</li> </ul>	300
<ul> <li>— Number of outgoing interconnections</li> </ul>	300
— Data length of all incoming	4 800 byte
interconnections, max.	
— Data length of all outgoing	4 800 byte
interconnections, max.	
— Data length per connection, max.	450 byte
HMI variables via PROFINET (acyclic)	
<ul> <li>— Number of stations that can log on for HMI variables (PN OPC/iMap)</li> </ul>	3; 2x PN OPC/1x iMap
— HMI variable updating	500 ms
— Number of HMI variables	600
— Data length of all HMI variables, max.	9 600 byte
PROFIBUS proxy functionality	
— supported	Yes
— Number of linked PROFIBUS devices	32
— Data length per connection, max.	240 byte; Slave-dependent
Number of connections	
• overall	32
<ul> <li>usable for PG communication</li> </ul>	31
— reserved for PG communication	1
— adjustable for PG communication, min.	1
<ul> <li>— adjustable for PG communication, max.</li> </ul>	31
<ul> <li>usable for OP communication</li> </ul>	31
— reserved for OP communication	1
— adjustable for OP communication, min.	1
— adjustable for OP communication, max.	31
<ul> <li>usable for S7 basic communication</li> </ul>	30
- reserved for S7 basic communication	0
<ul> <li>— adjustable for S7 basic communication,</li> </ul>	0
min.	
<ul> <li>— adjustable for S7 basic communication,</li> </ul>	30
max.	16
usable for S7 communication	0
- reserved for S7 communication	0
— adjustable for S7 communication, min.	16
<ul> <li>adjustable for S7 communication, max.</li> <li>total number of instances, max</li> </ul>	32
<ul> <li>total number of instances, max.</li> <li>upph/s for routing</li> </ul>	
<ul> <li>usable for routing</li> </ul>	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
Fest commissioning functions	
Status block	Yes; Up to 2 simultaneously
Single step	Yes
Number of breakpoints	4
Status/control	
<ul> <li>Status/control variable</li> </ul>	Yes
Variables	Inputs, outputs, memory bits, DB, times, counters
<ul> <li>Number of variables, max.</li> </ul>	30
— of which status variables, max.	30
— of which control variables, max.	14
Forcing	
• Forcing	Yes
• Forcing, variables	Inputs, outputs
<ul> <li>Number of variables, max.</li> </ul>	10
Diagnostic buffer	
• present	Yes
<ul> <li>Number of entries, max.</li> </ul>	500
— can be set	No
— of which powerfail-proof	100
<ul> <li>Number of entries readable in RUN, max.</li> </ul>	499
— can be set	Yes; From 10 to 499
— preset	10
Service data	
● can be read out	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	0°0
• max.	60 °C
Configuration	
Configuration software	
• STEP 7	Yes; V5.5 or higher
Programming	
Command set	see instruction list
Nesting levels	8
<ul> <li>System functions (SFC)</li> </ul>	see instruction list

<ul> <li>System function blocks (SFB)</li> </ul>	see instruction list
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
Know-how protection	
<ul> <li>User program protection/password protection</li> </ul>	Yes
<ul><li>User program protection/password protection</li><li>Block encryption</li></ul>	Yes Yes; With S7 block Privacy
Block encryption	
Block encryption     Dimensions	Yes; With S7 block Privacy
Block encryption     Dimensions     Width	Yes; With S7 block Privacy 120 mm
Block encryption     Dimensions     Width     Height	Yes; With S7 block Privacy 120 mm 125 mm
Block encryption     Dimensions     Width     Height     Depth	Yes; With S7 block Privacy 120 mm 125 mm