## **SIEMENS**

## Data sheet

## 6ES7416-2XK04-0AB0

SIMATIC S7-400, CPU 416-2 Central processing unit with: Work memory 2.8 MB, (1.4 MB code, 1.4 MB data), 1st interface MPI/DP 12 Mbit/s, 2nd interface PROFIBUS DP.

	12 Mbit/s, 2nd interface PROFIBUS DP,
General information	
Product type designation	CPU 416-2
Firmware version	V4.0
Engineering with	
Programming package	STEP 7 V5.2 SP1 HF3 or higher with HW update
CiR – Configuration in RUN	
CiR synchronization time, basic load	100 ms
CiR synchronization time, time per I/O byte	40 μs
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
Input current	
from backplane bus 5 V DC, typ.	1 A
from backplane bus 5 V DC, max.	1.2 A
from backplane bus 24 V DC, max.	Total current consumption of the components connected to the MPI/DP interfaces, but no more than 150 mA per interface
Power loss	
Power loss Power loss, typ.	4.5 W
	4.5 W
Power loss, typ.	4.5 W
Power loss, typ.  Memory	4.5 W  1 400 kbyte
Power loss, typ.  Memory  Work memory	
Power loss, typ.  Memory  Work memory  • integrated (for program)	1 400 kbyte
Power loss, typ.  Memory  Work memory  • integrated (for program)  • integrated (for data)	1 400 kbyte 1 400 kbyte
Power loss, typ.  Memory  Work memory  • integrated (for program)  • integrated (for data)  • expandable	1 400 kbyte 1 400 kbyte
Power loss, typ.  Memory  Work memory  • integrated (for program)  • integrated (for data)  • expandable  Load memory	1 400 kbyte 1 400 kbyte No
Power loss, typ.  Memory  Work memory  • integrated (for program)  • integrated (for data)  • expandable  Load memory  • expandable FEPROM	1 400 kbyte 1 400 kbyte No  Yes; with Memory Card (FLASH)
Power loss, typ.  Memory  Work memory  • integrated (for program)  • integrated (for data)  • expandable  Load memory  • expandable FEPROM  • expandable FEPROM, max.	1 400 kbyte 1 400 kbyte No  Yes; with Memory Card (FLASH) 64 Mbyte
Power loss, typ.  Memory  Work memory  • integrated (for program)  • integrated (for data)  • expandable  Load memory  • expandable FEPROM  • expandable FEPROM, max.  • integrated RAM, max.	1 400 kbyte 1 400 kbyte No  Yes; with Memory Card (FLASH) 64 Mbyte 256 kbyte
Power loss, typ.  Memory  Work memory  integrated (for program)  integrated (for data)  expandable  Load memory  expandable FEPROM  expandable FEPROM, max.  integrated RAM, max.  expandable RAM	1 400 kbyte 1 400 kbyte No  Yes; with Memory Card (FLASH) 64 Mbyte 256 kbyte Yes; with Memory Card (RAM)
Power loss, typ.  Memory  Work memory  • integrated (for program)  • integrated (for data)  • expandable  Load memory  • expandable FEPROM  • expandable FEPROM, max.  • integrated RAM, max.  • expandable RAM  • expandable RAM, max.	1 400 kbyte 1 400 kbyte No  Yes; with Memory Card (FLASH) 64 Mbyte 256 kbyte Yes; with Memory Card (RAM)
Power loss, typ.  Memory  Work memory  integrated (for program)  integrated (for data)  expandable  Load memory  expandable FEPROM  expandable FEPROM, max.  integrated RAM, max.  expandable RAM  expandable RAM, max.  Backup	1 400 kbyte 1 400 kbyte No  Yes; with Memory Card (FLASH) 64 Mbyte 256 kbyte Yes; with Memory Card (RAM) 16 Mbyte

## Backup battery 550 µA Backup current, typ. 1 539 µA • Backup current, max. 144 d • Backup time, max. 5 V DC to 15 V DC • Feeding of external backup voltage to CPU CPU processing times for bit operations, typ. $0.04 \mu s$ for word operations, typ. $0.04 \mu s$ for fixed point arithmetic, typ. $0.04 \mu s$ for floating point arithmetic, typ. $0.12 \, \mu s$ CPU-blocks DB 4 095; DB 0 reserved • Number, max. 64 kbyte • Size, max. FB 2 048 • Number, max. 64 kbyte • Size, max. FC 2 048 • Number, max. 64 kbyte • Size, max. OB • Number, max. see instruction list 64 kbyte • Size, max. • Number of time alarm OBs 8 4 • Number of delay alarm OBs 9 • Number of cyclic interrupt OBs 8 • Number of process alarm OBs 1 • Number of multicomputing OBs Nesting depth 24 • per priority class 2 • additional within an error OB S7 counter Number 2 048 Retentivity Yes - adjustable 0 - lower limit 2 047 - upper limit

- preset

Z 0 to Z 7

<b>0</b>	
Counting range	
— lower limit	0
— upper limit	999
S7 times	
Number	2 048
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	No times retentive
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
• Туре	SFB
Data areas and their retentivity	
retentive data area in total	Total working and load memory (with backup battery)
Flag	
Number, max.	16 kbyte
<ul> <li>Retentivity available</li> </ul>	Yes; MB 0 to MB 16383
<ul> <li>Retentivity preset</li> </ul>	MB 0 to MB 15
<ul> <li>Number of clock memories</li> </ul>	8; 1 memory byte
Local data	
• adjustable, max.	32 kbyte
• preset	16 kbyte
Address area	
I/O address area	
• Inputs	16 kbyte
<ul><li>Outputs</li></ul>	16 kbyte
of which distributed	
— MPI/DP interface, inputs	2 kbyte
<ul> <li>MPI/DP interface, outputs</li> </ul>	2 kbyte
— DP interface, inputs	8 kbyte; for each line that is operated in isochronous mode, i.e. to which an OB61 to 62 has been assigned, the distributed IO address areas are halved
— DP interface, outputs	8 kbyte; for each line that is operated in isochronous mode, i.e. to which an OB61 to 62 has been assigned, the distributed IO address areas are halved
Process image	
Inputs, adjustable	16 kbyte
<ul> <li>Outputs, adjustable</li> </ul>	16 kbyte

<ul><li>Inputs, default</li></ul>	512 byte
Outputs, default	512 byte
• consistent data, max.	244 byte
<ul> <li>Access to consistent data in process image</li> </ul>	Yes
Subprocess images	
Number of subprocess images, max.	15
Digital channels	
• Inputs	131 072
— of which central	131 072
Outputs	131 072
— of which central	131 072
Analog channels	
• Inputs	8 192
— of which central	8 192
Outputs	8 192
— of which central	8 192
Handrian and in the state of	
Hardware configuration  Number of expansion units, max.	21; of which 6 ER with K-bus
connectable OPs	63 without message processing, 12 with message processing
Multicomputing	Yes; 4 CPUs max. (with UR1 or UR2)
Interface modules	,
Number of connectable IMs (total), max.	6
Number of connectable IM 460s, max.	6
<ul> <li>Number of connectable IM 463s, max.</li> </ul>	4; IM 463-2
Number of DP masters	
• integrated	2
• via CP	10; CP 443-5 Extended
• via IM 467	4
Mixed mode IM + CP permitted	No; IM 467 cannot be used jointly with CP 443-5 Ext.
<ul> <li>Number of pluggable S5 modules (via adapter capsule in central device), max.</li> </ul>	6
Number of operable FMs and CPs (recommended)	
• FM	Limited by number of slots and number of connections
• CP, PtP	CP 440: Limited by number of slots; CP 441: limited by number of connections
• CP, LAN	Limited by number of slots and number of connections
<ul> <li>PROFIBUS and Ethernet CPs</li> </ul>	14; incl. CP 443-5 Ext. and IM 467
Slots	
• required slots	1
Time of day	
Clock	

Resolution	<ul> <li>Hardware clock (real-time)</li> </ul>	Yes
	<ul> <li>retentive and synchronizable</li> </ul>	Yes
Deviation per day (unbuffered), max.  Operating hours counter  Number Number 8 Number Operating of values Pretentive Yes  Clock synchronization  Supported Yes Operating Number Yes  Other Number Number Yes  Clock synchronization  Supported Yes Operating Number	<ul><li>Resolution</li></ul>	1 ms
Operating hours counter  • Number • Number	<ul> <li>Deviation per day (buffered), max.</li> </ul>	1.7 s; Power on
Number Number range Number/Number range Number/Number range Range of values retentive Yes retentive Ves  Number/Number range Ves retentive Ves  Number of connections Ves  Number of connections  Programsision rate, max.  Pop master  Number of connections, max.  Pop master  Number of connections, max.  Pop master  Pop master  Pop master  Number of connections, max.  Pop master  Pop master  Number of connections, max.  Pop master  Pop master  Number of connections, max.  Pop master  Pop Max Number of connections, max.  Pop master  Pop Max Number of connections  Pop master  Pop Max Number of connections  Pop Max Number of connections, max.  Pop Max Number of connections, max Number of connection resources on the line, the number of connection resources on the line is reduced by 1	<ul> <li>Deviation per day (unbuffered), max.</li> </ul>	8.6 s; Power off
Number/Number range Range of values Ot to 32767 hours retentive Ves  Clock synchronization  Supported Supported Ves Other, laster Other, laster Other, save Other	Operating hours counter	
Range of values     retentive     Yes     retentive     Yes     Supported     Supported     Yes     to MPI, master     to MPI, slave     Yes     to DP, master     ves     in AS, master     in AS, slave  1 Interface Interface type Integrated Physics RS 485 / PROFIBUS Isolated Yes Power supply to interface (15 to 30 V DC), max. Number of connection resources Functionality     MPI     PROFIBUS DP master     PROFIBUS DP slave     Yes PROFIBUS DP slave  PROFIBUS D	Number	8
retentive Yes  Clock synchronization      supported Yes     to MPI, master Yes     to DP, master Yes     to DP, master Yes     to DP, slave Yes     in AS, master Yes     in AS, slave Yes  Interface type Integrated Physics RS 485 / PROFIBUS Isolated Yes Power supply to interface (15 to 30 V DC), max. 150 mA Number of connection resources MPI: 44, DP: 32  Functionality      MPI Yes     PROFIBUS DP master Yes     PROFIBUS DP slave Yes  MPI      Number of connections 44     Transmission rate, max. 12 Mbit/s  Services      PG/OP communication Yes     Routing Yes     Global data communication Yes     S7 basic communication Yes     S7 communication Yes DP master      Number of connections, max. 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1	<ul> <li>Number/Number range</li> </ul>	0 to 7
Clock synchronization  • supported • to MPI, master • to MPI, slave • to DP, master • to DP, master • to DP, slave • in AS, master • in AS, slave  1. Interface Interface type Interface type Physics RS 485 / PROFIBUS Isolated Power supply to interface (15 to 30 V DC), max. Number of connection resources MPI: 44, DP: 32 Functionality  • MPI • PROFIBUS DP master • PROFIBUS DP slave MPI • Number of connections • Transmission rate, max. Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S8 diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1	<ul> <li>Range of values</li> </ul>	0 to 32767 hours
supported     to MPI, master     to MPI, slave     to DP, master     ves     to DP, slave     ves     to DP, slave     ves     in AS, master     ves     in AS, slave   Interface type  Interface type  Physics  Isolated  Yes  Power supply to interface (15 to 30 V DC), max.  Number of connection resources  MPI: 44, DP: 32  Functionality  MPI  PROFIBUS DP master     PROFIBUS DP slave  PROFIBUS DP slave  MPI  Number of connections     44     Transmission rate, max.  Services  PG/OP communication     Yes     PG/OP communication     Yes     Services  PST obsic communication     Yes     ST basic communication     Yes  PD master  Number of connections, max.  32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1	• retentive	Yes
• to MPI, master • to MPI, slave • to DP, master • to DP, slave • to DP, slave • in AS, master • in AS, slave  1. Interface Interface type Physics RS 485 / PROFIBUS Isolated Power supply to interface (15 to 30 V DC), max.  Number of connection resources MPI: 44, DP: 32  Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave  PROFIBUS DP slave  POWER  • Number of connections  44 • Transmission rate, max.  12 Mbit/s  Services  — PG/OP communication — Routing — Global data communication — S7 communication — S7 basic communication — S7 communication — S8 connections, max.  32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1	Clock synchronization	
to MPI, slave     to DP, master     to DP, slave     to DP, slave     in AS, master     in AS, slave  Prysics  Interface  Interface type Integrated Physics RS 485 / PROFIBUS Isolated Power supply to interface (15 to 30 V DC), max.  Number of connection resources  MPI PROFIBUS DP master PROFIBUS DP slave  PROFIBUS DP slave  MPI Number of connections Prof/OP communication Prof/OP commun	• supported	Yes
• to DP, master     • to DP, slave     • to DP, slave     • in AS, master     • in AS, master     • in AS, slave   1. Interface Interface type       Integrated Physics       RS 485 / PROFIBUS  Isolated       Yes  Power supply to interface (15 to 30 V DC), max.  Iso mA  Number of connection resources       MPI: 44, DP: 32  Functionality        MPI       Yes       PROFIBUS DP master       PROFIBUS DP slave  MPI        Number of connections       44       Transmission rate, max.  Services        PG/OP communication       Routing       Global data communication       S7 basic communication       S7 basic communication       Yes       PD master        Number of connections, max.  32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1	● to MPI, master	Yes
to DP, slave     in AS, master     in AS, slave  1. Interface     in AS, slave  7 ves  1. Interface Interface type     Integrated Physics Isolated Power supply to interface (15 to 30 V DC), max.  Number of connection resources MPI: 44, DP: 32  Functionality  MPI PROFIBUS DP master PROFIBUS DP slave  MPI  Number of connections A4 Transmission rate, max.  12 Mbit/s  Services  PG/OP communication Psi basic communication Psi connections, max.  32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1	• to MPI, slave	Yes
in AS, master in AS, slave  Pes  Interface Interface type Physics RS 485 / PROFIBUS Isolated Power supply to interface (15 to 30 V DC), max.  Mumber of connection resources  Functionality  MPI PROFIBUS DP master PROFIBUS DP slave  MPI Number of connections 44 Transmission rate, max. 12 Mbit/s  Services  PG/OP communication Routing Global data communication S7 basic communication Yes S7 communication Yes PROFIBUS DP master Yes PG/OP master Yes PG/OP communication Yes Services  PG/OP communication Yes S7 communication Yes S7 communication Yes S7 communication Yes PS7 communication Yes PS7 communication Yes PS8 connections yes PS9 communication Yes PS9 connections repeater is used on the line, the number of connection resources on the line is reduced by 1	• to DP, master	Yes
Interface Interface type Integrated Physics RS 485 / PROFIBUS Isolated Power supply to interface (15 to 30 V DC), max. Number of connection resources PROFIBUS DP master PROFIBUS DP master PROFIBUS DP slave  Integrated Provided Transmission rate, max.  Services  PG/OP communication Routing PG Global data communication PS To basic communication PS To communication	• to DP, slave	Yes
Interface type Physics RS 485 / PROFIBUS Isolated Power supply to interface (15 to 30 V DC), max.  Number of connection resources PROFIBUS PROFIBUS DP master PROFIBUS DP slave PROFIBUS DP slave  MPI  Number of connections PROFIBUS DP slave  MPI  Number of connections PROFIBUS DP slave  MPI  Number of connections Pransmission rate, max.  12 Mbit/s  Services  PG/OP communication Pes Routing Global data communication Pes S7 basic communication Pes S7 communication Pes DP master  Number of connections, max.  32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1	• in AS, master	Yes
Interface type	• in AS, slave	Yes
Interface type	1. Interface	
Isolated Power supply to interface (15 to 30 V DC), max.  Number of connection resources  MPI: 44, DP: 32  Functionality  MPI  MPI  PROFIBUS DP master PROFIBUS DP slave  PROFIBUS DP slave  MPI  Number of connections Transmission rate, max.  12 Mbit/s  Services  PG/OP communication Pso basic communication Pso basic communication Pso basic communication Pso communication Pso basic communication Pso communication Pso basic communication Pso connections on the line, the number of connection resources on the line is reduced by 1		Integrated
Power supply to interface (15 to 30 V DC), max.  Number of connection resources  MPI: 44, DP: 32  Functionality  • MPI  • PROFIBUS DP master • PROFIBUS DP slave  MPI  • Number of connections • Transmission rate, max.  Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 basic communication — S7 communication — S7 communication  PDP master  • Number of connections, max.  150 mA  MPI: 44, DP: 32  Yes  Yes  Yes  Yes  Yes  Yes  44  • Yes  - PG/OP communication — Yes — PG/OP communication — S7 basic communication — Yes — S7 communication — S8 diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1	Physics	RS 485 / PROFIBUS
Number of connection resources  MPI: 44, DP: 32  Functionality  MPI PROFIBUS DP master PROFIBUS DP slave  PROFIBUS DP slave  Number of connections Transmission rate, max.  Services PROFOP communication Routing Soluting	Isolated	Yes
Functionality  • MPI  • PROFIBUS DP master  • PROFIBUS DP slave  MPI  • Number of connections  • Transmission rate, max.  12 Mbit/s  Services  — PG/OP communication — Routing — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication — S8 communication — S9 communication — S9 communication — S1 diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1	Power supply to interface (15 to 30 V DC), max.	150 mA
<ul> <li>MPI</li> <li>PROFIBUS DP master</li> <li>PROFIBUS DP slave</li> <li>Yes</li> <li>MPI</li> <li>Number of connections</li> <li>Transmission rate, max.</li> <li>12 Mbit/s</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— S7 basic communication</li> <li>— S7 communication</li> <li>— S7 communication</li> <li>Yes</li> <li>— S7 communication</li> <li>Yes</li> <li>DP master</li> <li>Number of connections, max.</li> <li>32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1</li> </ul>	Number of connection resources	MPI: 44, DP: 32
<ul> <li>PROFIBUS DP master</li> <li>PROFIBUS DP slave</li> <li>Yes</li> </ul> MPI <ul> <li>Number of connections</li> <li>Transmission rate, max.</li> <li>12 Mbit/s</li> </ul> Services <ul> <li>PG/OP communication</li> <li>Routing</li> <li>Global data communication</li> <li>Yes</li> <li>Global data communication</li> <li>Yes</li> <li>S7 basic communication</li> <li>Yes</li> <li>S7 communication</li> <li>Yes</li> </ul> DP master <ul> <li>Number of connections, max.</li> <li>32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1</li> </ul>	Functionality	
PROFIBUS DP slave  Yes  MPI  Number of connections Transmission rate, max.  12 Mbit/s  Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication — S7 communication — S8 communication — S9 communication —	• MPI	Yes
Number of connections  Number of connections  Transmission rate, max.  12 Mbit/s  Services  PG/OP communication Yes  Routing Global data communication Yes S7 basic communication Yes S7 communication Yes  S7 communication Yes  S7 communication Yes  S8 ST basic communication Yes S9 ST basic communication Yes S9 ST basic communication Yes S9 ST communication Yes  S9 ST communication Yes  S9 ST a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1	<ul> <li>PROFIBUS DP master</li> </ul>	Yes
<ul> <li>Number of connections</li> <li>Transmission rate, max.</li> <li>Mbit/s</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— S7 basic communication</li> <li>— S7 communication</li> <li>— S7 communication</li> <li>— S7 communication</li> <li>— S8 Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>DP master</li> <li>Number of connections, max.</li> <li>32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1</li> </ul>	<ul> <li>PROFIBUS DP slave</li> </ul>	Yes
<ul> <li>◆ Transmission rate, max.</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— S7 basic communication</li> <li>— S7 communication</li> <li>— S7 communication</li> <li>— S7 communication</li> <li>Yes</li> <li>DP master</li> <li>◆ Number of connections, max.</li> <li>32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1</li> </ul>	MPI	
Services  - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication - S7 communication - S8 communication - S9 communic	<ul> <li>Number of connections</li> </ul>	44
<ul> <li>— PG/OP communication</li> <li>— Routing</li> <li>— Global data communication</li> <li>— S7 basic communication</li> <li>— S7 communication</li> <li>— S7 communication</li> <li>— S7 communication</li> <li>Yes</li> <li>DP master</li> <li>■ Number of connections, max.</li> <li>32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1</li> </ul>	<ul><li>Transmission rate, max.</li></ul>	12 Mbit/s
<ul> <li>Routing</li> <li>Global data communication</li> <li>S7 basic communication</li> <li>S7 communication</li> <li>Yes</li> <li>Yes</li> <li>P master</li> <li>Number of connections, max.</li> <li>32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1</li> </ul>	Services	
— Global data communication  — S7 basic communication  — S7 communication  — S7 communication  Yes  — S7 communication  Yes  DP master  ■ Number of connections, max.  32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1	— PG/OP communication	Yes
<ul> <li>— S7 basic communication</li> <li>— S7 communication</li> <li>Yes</li> <li>DP master</li> <li>Number of connections, max.</li> <li>32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1</li> </ul>	— Routing	Yes
— S7 communication  Yes  DP master  ● Number of connections, max.  32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1	<ul> <li>Global data communication</li> </ul>	Yes
DP master  ● Number of connections, max.  32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1	— S7 basic communication	Yes
<ul> <li>Number of connections, max.</li> <li>32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1</li> </ul>	— S7 communication	Yes
connection resources on the line is reduced by 1	DP master	
• Transmission rate, max. 12 Mbit/s	Number of connections, max.	
	• Transmission rate, max.	12 Mbit/s

<ul> <li>Number of DP slaves, max.</li> </ul>	32
Services	
— PG/OP communication	Yes
— Routing	Yes
<ul> <li>Global data communication</li> </ul>	Yes
<ul> <li>— S7 basic communication</li> </ul>	Yes
— S7 communication	Yes
— Equidistance	Yes
— SYNC/FREEZE	Yes
<ul> <li>Activation/deactivation of DP slaves</li> </ul>	Yes
<ul> <li>Direct data exchange (slave-to-slave communication)</li> </ul>	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
DP slave	
• GSD file	http://www.ad.siemens.de/csi_e/gsd
<ul> <li>Transmission rate, max.</li> </ul>	12 Mbit/s
<ul> <li>Address area, max.</li> </ul>	32
<ul> <li>User data per address area, max.</li> </ul>	32 byte
— of which consistent, max.	32 byte
Services	
— PG/OP communication	Yes
— Routing	Yes
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
Interface type	Integrated
Physics	RS 485 / PROFIBUS
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	150 mA
Number of connection resources	32
Functionality	
<ul> <li>PROFIBUS DP master</li> </ul>	Yes
PROFIBUS DP slave	Yes

DP master	
Number of connections, max.	32; If a diagnostics repeater is used on the line, the number of
	connection resources on the line is reduced by 1
<ul><li>Transmission rate, max.</li></ul>	12 Mbit/s
<ul> <li>Number of DP slaves, max.</li> </ul>	125
Services	
— PG/OP communication	Yes
— Routing	Yes
<ul> <li>Global data communication</li> </ul>	Yes
— S7 basic communication	Yes
— S7 communication	Yes
— Equidistance	Yes
— SYNC/FREEZE	Yes
<ul> <li>Activation/deactivation of DP slaves</li> </ul>	Yes
<ul> <li>Direct data exchange (slave-to-slave communication)</li> </ul>	Yes
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
DP slave	
• GSD file	http://www.ad.siemens.de/csi_e/gsd
• Transmission rate, max.	12 Mbit/s
<ul> <li>Address area, max.</li> </ul>	32
<ul> <li>User data per address area, max.</li> </ul>	32 byte
— of which consistent, max.	32 byte
Services	
— Routing	Yes
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	Yes
Equidistance	Yes
User data per isochronous slave, max.	244 byte
shortest clock pulse	1 ms
max. cycle	32 ms

Communication functions	
PG/OP communication	Yes
Number of connectable OPs without message	63
processing	
<ul> <li>Number of connectable OPs with message</li> </ul>	12
processing	
Global data communication	
• supported	Yes
<ul><li>Number of GD loops, max.</li></ul>	16
<ul> <li>Number of GD packets, transmitter, max.</li> </ul>	16
<ul> <li>Number of GD packets, receiver, max.</li> </ul>	32
<ul> <li>Size of GD packets, max.</li> </ul>	64 byte
• Size of GD packet (of which consistent), max.	1 variable
S7 basic communication	
• supported	Yes; in MPI mode via: SFC X_SEND, X_RCV, X_GET and X_PUT; in DP master mode via: SFC I_GET and I_PUT
User data per job, max.	76 byte
• User data per job (of which consistent), max.	1 variable
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
• User data per job, max.	64 kbyte
• User data per job (of which consistent), max.	462 byte; 1 variable
S5 compatible communication	
• supported	Yes; Via FC AG_SEND and AG_RECV, max. via 10 CP 443-1 or 443-5
<ul><li>User data per job, max.</li></ul>	8 kbyte
<ul> <li>User data per job (of which consistent), max.</li> </ul>	240 byte
Standard communication (FMS)	
• supported	Yes; Via CP and loadable FB
Number of connections	
• overall	64
<ul> <li>usable for PG communication</li> </ul>	
<ul> <li>reserved for PG communication</li> </ul>	1
• usable for OP communication	
— reserved for OP communication	1
S7 message functions	
Number of login stations for message functions, max.	12
Symbol-related messages	Yes
Program alarms	Yes
simultaneously active Alarm-S blocks, max.	200; ALARM_S/SQ blocks or ALARM_D/DQ blocks

Alarm 8-blocks	Yes
<ul> <li>Number of instances for alarm 8 and S7</li> </ul>	1 800
communication blocks, max.	
• preset, max.	600
Process control messages	Yes
Number of archives that can log on simultaneously (SFB 37 AR_SEND)	32
Number of messages	
• overall, max.	1 024
• in 100 ms grid, max.	128
• in 500 ms grid, max.	512
● in 1000 ms grid, max.	1 024
Number of additional values	
• with 100 ms grid, max.	1
• with 500, 1000 ms grid, max.	10
est commissioning functions	
Status block	Yes
Single step	Yes
Number of breakpoints	4
Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
<ul> <li>Number of variables, max.</li> </ul>	70
Forcing	
• Forcing	Yes
<ul> <li>Forcing, variables</li> </ul>	Inputs/outputs, bit memories, distributed I/Os
Number of variables, max.	512
Diagnostic buffer	
• present	Yes
Number of entries, max.	3 200
— adjustable	Yes
— preset	120
Configuration	
Configuration software	
• STEP 7	Yes
Programming	
1 Togramming	
Command set	see instruction list
	see instruction list 8
Command set	
<ul><li>Command set</li><li>Nesting levels</li></ul>	8

Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
Number of simultaneously active SFCs	
— DPSYC_FR	2
— D_ACT_DP	4
— RD_REC	8
— WR_REC	8
— WR_PARM	8
— PARM_MOD	1
— WR_DPARM	2
— DPNRM_DG	8
— RDSYSST	8; 1 to 8
— DP_TOPOL	1
Number of simultaneously active SFBs	
— RDREC	8
— WRREC	8
Know-how protection	
<ul> <li>User program protection/password protection</li> </ul>	Yes
Dimensions	
Width	25 mm
Height	290 mm
Depth	219 mm
Weights	
Weight, approx.	720 g
last modified:	04/27/2018