SIEMENS

Data sheet

6ES7412-2EK07-0AB0



SIMATIC S7-400, CPU 412-2 PN Central processing unit with: Work memory 1 MB, (0.5 MB code; 0.5 MB data) interfaces 1st interface MPI/DP 12 Mbit/s, (X1), 2nd interface Ethernet/PROFINET (X5)

General information			
Product type designation	CPU 412-2 PN		
HW functional status	01		
Firmware version	V7.0		
Product function			
Isochronous mode	Yes; Via PROFIBUS DP or PROFINET interface		
Engineering with			
 Programming package 	STEP 7 V5.5 or higher with HSP 262		
CiR - Configuration in RUN			
CiR synchronization time, basic load	100 ms		
CiR synchronization time, time per I/O byte	30 µs		
Supply voltage			
Rated value (DC)	Power supply via system power supply		
Input current			
from backplane bus 5 V DC, typ.	1.1 A		
from backplane bus 5 V DC, max.	1.4 A		
from backplane bus 24 V DC, max.	150 mA; 150 mA per DP interface		
from interface 5 V DC, max.	90 mA; At the DP interface		
Power loss			
Power loss, typ.	5.5 W		
Memory			
True of an annual			
Type of memory	RAM		
Type of memory Work memory	RAM		
	RAM 1 Mbyte		
Work memory			
Work memory • integrated	1 Mbyte		
Work memory integrated integrated (for program) 	1 Mbyte 512 kbyte		
Work memory integrated integrated (for program) integrated (for data) 	1 Mbyte 512 kbyte 512 kbyte		
Work memory • integrated • integrated (for program) • integrated (for data) • expandable	1 Mbyte 512 kbyte 512 kbyte		
Work memory • integrated • integrated (for program) • integrated (for data) • expandable Load memory	1 Mbyte 512 kbyte 512 kbyte No		
Work memory • integrated • integrated (for program) • integrated (for data) • expandable Load memory • expandable FEPROM	1 Mbyte 512 kbyte 512 kbyte No Yes; with Memory Card (FLASH)		
Work memory • integrated • integrated (for program) • integrated (for data) • expandable Load memory • expandable FEPROM • expandable FEPROM, max.	1 Mbyte 512 kbyte 512 kbyte No Yes; with Memory Card (FLASH) 64 Mbyte		
Work memory • integrated • integrated (for program) • integrated (for data) • expandable Load memory • expandable FEPROM • expandable FEPROM, max. • integrated RAM, max.	1 Mbyte 512 kbyte 512 kbyte No Yes; with Memory Card (FLASH) 64 Mbyte 512 kbyte		
Work memory	1 Mbyte 512 kbyte 512 kbyte No Yes; with Memory Card (FLASH) 64 Mbyte 512 kbyte Yes; with Memory Card (RAM)		
Work memory	1 Mbyte 512 kbyte 512 kbyte No Yes; with Memory Card (FLASH) 64 Mbyte 512 kbyte Yes; with Memory Card (RAM)		
Work memory • integrated • integrated (for program) • integrated (for data) • expandable Load memory • expandable FEPROM • expandable FEPROM, max. • integrated RAM, max. • expandable RAM • expandable RAM, max. Backup	1 Mbyte 512 kbyte 512 kbyte No Yes; with Memory Card (FLASH) 64 Mbyte 512 kbyte Yes; with Memory Card (RAM) 64 Mbyte		
Work memory • integrated • integrated (for program) • integrated (for data) • expandable Load memory • expandable FEPROM • expandable FEPROM, max. • integrated RAM, max. • expandable RAM • expandable RAM • expandable RAM • expandable RAM, max.	1 Mbyte 512 kbyte 512 kbyte No Yes; with Memory Card (FLASH) 64 Mbyte 512 kbyte Yes; with Memory Card (RAM) 64 Mbyte Yes; With Memory Card (RAM) 64 Mbyte		
Work memory • integrated • integrated (for program) • integrated (for data) • expandable Load memory • expandable FEPROM • expandable FEPROM, max. • integrated RAM, max. • expandable RAM • expandable RAM • expandable RAM, max. Backup • present • with battery	1 Mbyte 512 kbyte 512 kbyte No Yes; with Memory Card (FLASH) 64 Mbyte 512 kbyte Yes; with Memory Card (RAM) 64 Mbyte Yes; with Memory Card (RAM) 64 Mbyte		
Work memory	1 Mbyte 512 kbyte 512 kbyte No Yes; with Memory Card (FLASH) 64 Mbyte 512 kbyte Yes; with Memory Card (RAM) 64 Mbyte Yes; with Memory Card (RAM) 64 Mbyte		

	0504		
Backup current, max.	850 μA		
Backup time, max.	Dealt with in the module data manual with the secondary conditions and the factors of influence		
 Feeding of external backup voltage to CPU 	5 V DC to 15 V DC		
CPU processing times			
for bit operations, typ.	31.25 ns		
for word operations, typ.	31.25 ns		
for fixed point arithmetic, typ.	31.25 ns		
for floating point arithmetic, typ.	62.5 ns		
CPU-blocks	02.0113		
DB			
Number, max.	3 000; Number range: 1 to 16000		
• Size, max.	64 kbyte		
FB			
Number, max.	1 500; Number range: 0 to 7999		
• Size, max.	64 kbyte		
FC			
Number, max.	1 500; Number range: 0 to 7999		
• Number, max. • Size, max.	64 kbyte		
• Size, max. OB			
Number, max.	see instruction list		
	64 kbyte		
Size, max.Number of free cycle OBs	1; OB 1		
Number of time alarm OBs			
	2; OB 10, 11		
Number of delay alarm OBs	2; OB 20, 21 2: OB 23, 35 (abortant availa that each ha and \pm 500 up)		
Number of cyclic interrupt OBs	2; OB 32, 35 (shortest cycle that can be set = $500 \ \mu s$)		
Number of process alarm OBs	2; OB 40, 41		
Number of DPV1 alarm OBs	3; OB 55-57		
Number of isochronous mode OBs	2; OB 61-62		
Number of multicomputing OBs	1; OB 60		
Number of background OBs	1; OB 90		
Number of startup OBs	3; OB 100-102		
Number of asynchronous error OBs	9; OB 80-88		
Number of synchronous error OBs	2; OB 121, 122		
Nesting depth			
per priority class	24		
 additional within an error OB 	1		
Counters, timers and their retentivity			
S7 counter			
• Number	2 048		
Retentivity			
— adjustable	Yes		
— preset	Z 0 to Z 7		
Counting range			
— 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		
— preset	No times retentive		
Time range			
— lower limit	10 ms		
— upper limit	9 990 s		
IEC timer			
• present	Yes		
• Туре	SFB		

Opta seas and their retentionly Figs Particle data are (and, itmers, counters, flags), max. Fids Pisses max, 4 kkylts, Size of bit memory with backup battery) Pisses max, 4 kkylts, Size of bit memory address area Pisses max, 4 kkylts, Size of bit memory address area Pisses max, 8 kin 1 memory byte Indexta data, max, 8 kin 1 memory byte Indexta data, max, 8 kin 1 memory byte Indexta data, max, 8 kin 1 Indexta data, max, 8 kin 1 Indexta data, max, 10 kin 4 Indexta,	Number	Unlimited (limited only by RAM capacity)	
Finag 4 bdgs Size of bit memory address area • Size, max. 4 bdgs Size of bit memory address area • Retentivity preaded MB b to MB 15 • Retentivity preaded Si in 11 memory byte • edjustible, max. 8 bdyte • edjustible, max. 9 bdyte • edjustible, max. 9 bdyte • edjustible, max. 16 bdyte • edjustible, edjustible 4 kdyte • funds, adjustible 4 kdyte • funds, adjustible 4 kdyte • funds, adjustible 128 byte • funds, adjustible 127 byte • funds, adj	Data areas and their retentivity		
Finag 4 bdgs Size of bit memory address area • Size, max. 4 bdgs Size of bit memory address area • Retentivity preaded MB b to MB 15 • Retentivity preaded Si in 11 memory byte • edjustible, max. 8 bdyte • edjustible, max. 9 bdyte • edjustible, max. 9 bdyte • edjustible, max. 16 bdyte • edjustible, edjustible 4 kdyte • funds, adjustible 4 kdyte • funds, adjustible 4 kdyte • funds, adjustible 128 byte • funds, adjustible 127 byte • funds, adj		Total working and load memory (with backup battery)	
• Size max.4 ktp/s/ Size of bit memory address area• Retentivity presetM8 0 to M8 15• Retentivity presetKtp 0• Coal dataKtp 0• Coal dataKtp 0• Coal dataKtp 0• Preset4 ktp 0• Ordputs4 ktp 0• Ordputs28 by 0• Ordputs28 by 0• Ordputs28 by 0• Ordputs27 80• Ordputs27 80• Ordputs27 80• Ordputs27 80• Ordputs20 48• Ordputs10 CP 43 5 Ext or P 43 1 m• Ordputs10 CP 43 5 Ext or P 43 1 m• Ordputs10 CP 43 5 Ext or P 43 1 m• Ordputs10 CP 43 5 Ext or P 43 1 m• Ordputs10 CP 43			
• Aleonomy protectMB 0 to MB 15• Number of olox memories8 kp/s• digutable, max.8 kp/s• pinest4 kp/s• pinest4 kp/s• Dopuls4 kp/s• Outputs4 kp/s• Outputs4 kp/s• Outputs4 kp/s• Dopuls, digutable4 kp/s• Dopuls, digutable2 kp/s• Dopuls, digutable3 kp/s• Dopuls, digutable5• Dopuls, digutable3 kp/s• Dopuls, digutable3 kp/s• Dopuls5• Dopuls3 2783- of which central3 2783- of which central2 048• Outputs2 048• Outputs2 048• Outputs2 048• Outputs2 048• Outputs2 048• Outputs1 0• Dopuls1 0• Outputs2 048• Outputs2 048• Outputs2 048• Outputs2 048• Outputs1 0• Outputs1 0• Aleonometable0• Outputs1 0• Aleonometable1 0• Number of	-	4 kbyte; Size of bit memory address area	
• Autobe of clock memories8; in 1 memory bylelocal cloth• A bryle• - adjustable, max.8 bryle• rejords4 bryle• Address area• Korje• Coupouts• Korje• Outputs, adjustable4 korje• Outputs, adjustable128 bryle• Outputs, adjustable28 bryle• Outputs, adjustable28 bryle• Outputs, adjustable28 bryle• Outputs, adjustable27 63• Outputs27 63• Outputs27 63• Outputs27 63• Outputs27 63• Outputs20 63• Outputs6• Outputs6• Outputs6• Outputs6• Outputs6• Outputs7• Munthe of connectable IM 40:05, max.6• Number of connectable IM 40:05, max.6•	Retentivity available	Yes	
Local clain Market of the second	Retentivity preset	MB 0 to MB 15	
	Number of clock memories	8; in 1 memory byte	
4 ktypieAddrass area Kos address areaKos address areaKtypie ChuputsKtypie ChuputsKtypie ChuputsKtypie Finds: AdjustableKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypieKtypie<td>Local data</td><td></td>	Local data		
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Process image 4 kbyte • Inputs, adjustable 4 kbyte • Oruputs, default 128 byte • oruputs 5 • Digital channels 768 • oruputs - of which central 32 768 • oruputs 32 768 - • oruputs 2048 - • oruputs 2048 - • oruputs 2048 - • oruputs 2048 - • oruputs 4 - • oruputs 4 - • Number of connectable MMs (tota), max. 6	Inputs	4 kbyte	
• Inputs, adjustable4 kbyte• Outputs, adjustable4 kbyte• Outputs, adjustable4 kbyte• Outputs, adjustable4 kbyte• Outputs, default128 byte• consistent data, max.244 byte• Access to consistent data in process imageYesSubprocess imagesYes• Number of subprocess images, max.15Defaal channels32 788- of which central32 788- of which central32 788- of which central32 788- of which central2048- of which central1- of which central1- of which central1- of which central1- of which central6- of which central6- of which central6- Number of connectable IM 403s, max.6- Number of connectable IM 403s, max.6- Number of connectable IM 403s, max.6- Number of connectable IM 403s, max.6<	Outputs	4 kbyte	
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• consistent data, max.244 byte• Access to consistent data in process imagesYes• Number of subprocess images, max.15• Digital channels22 768• of which central32 768• of which central2048• of which central1• of which central6• Number of connectable Ms (total), max.6• Number of connectable	• •		
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• Inputs32 788 of which central32 768• Outputs32 768 of which central32 768 of which central32 768 of which central32 768 of which central2048 of which central2 048 of which central2 049 of central47Number of connectable Ms (total) max.6 Number of connectable M4 603, max.6 Number of connectable M4 603, max.6 Number of connectable M4 603, max.6 with efface module1 with efface module0 with efface module0 with efface module0 Number of lugga		15	
		22.700	
• Outputs32 788— of which central32 788Analog channels•• Inputs2 043— of which central2 048• Outputs2 048— of which central2 048• Inputs2 048— of which central2 048• Inputs2 048— of which central2 048• Outputs2 048• Outputs2 048• Outputs2 048• Number of connectable OPs47MuticomputingYes; 4 CPUs max. (with UR1 or UR2)Interface modules6• Number of connectable IMs (total), max.6• Number of connectable IMs (total), max.6• Number of connectable IM 460s, max.6• Number of connectable IM 463s, max.4• Number of connectable IM 463s, max.6• via Interface module0• via IM 4674• Number of ID Controllers6• Number of ID Controllers6• via Interface module0• Number of ID Controllers1• via CP4, Max. 4 in the central controller, no mixed operation of different CP 443-1 types in PROFINET IO modeNumber of operable FMs and CPs (recommended)1			
Analog channels • Inputs 2 048 - of which central 2 048 • Outputs 2 048 - of which central 2 048 - of which central 2 048 Hardware configuration 2 048 Mumber of expansion units, max. 2 1 connectable OPs 47 Multicomputing Yes; 4 CPUs max. (with UR1 or UR2) Interface modules 6 • Number of connectable IMs (total), max. 6 • Number of connectable IM 460s, max. 6 • Number of connectable IM 460s, max. 6 • Number of connectable IM 460s, max. 6 • Number of DP masters 1 • integrated 1 • via CP 10; CP 443-5 Extended • via IM 467 4 • Mixed model IM + CP permitted PROFINET IO mode • Via interface module 0 • Number of ID Controllers 6 • via interface module 0 • Via CP 4 • Via CP 4 • Via interface module 0 • Via intereface module 0	•		
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- of which central 2 048 • Outputs 2 048 - of which central 2 048 - of which central 2 048 Hardware configuration 2 048 Kumber of expansion units, max. 21 connectable OPs 47 Muticomputing Yes; 4 CPUs max. (with UR1 or UR2) Interface modules 6 • Number of connectable IMs (total), max. 6 • Number of connectable IM 460s, max. 7 • Integrated 1 • via CP 10; CP 443-5 Extended • Mixed mode IM + CP permitted No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode • via interface module 0 • Number of IQUIGable S5 modules (via adapter capsule in central device), max. • integrated 1 • via CP 4; Max. 4 in the central controller, no mixed operation of different CP 443-1 types in PROFINET IO mode Number of IQUIGABLE S5 modules (via adapter capsule in PROFINET IO mode <		2.048	
• Outputs 2 048 — of which central 2 048 Hardware configuration			
of which central 2 048 Hardware configuration 21 Number of expansion units, max. 21 connectable OPs 47 Mutticomputing Yes; 4 CPUs max. (with UR1 or UR2) Interface modules 6 • Number of connectable IMs (total), max. 6 • Number of connectable IMs (total), max. 6 • Number of connectable IMs 460s, max. 6 • Number of DP masters 1 • integrated 1 • via IM 467 4 • Wide mode IM + CP permitted 0 • wia interface module 0 • wia interface module 0 • wia interface module 0 • Number of ID Quegable SS modules (via adapter capsule in central centrol centroller, no mixed operation of different CP 443-1 in PROFINET IO mode Number of operable FMs and CPs (recommended) 1 • via CP 1 • via CP 1 • via C			
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Multicomputing Yes; 4 CPUs max. (with UR1 or UR2) Interface modules 6 Number of connectable IMs (total), max. 6 Number of connectable IM 460s, max. 6 Number of connectable IM 463s, max. 7 Number of DP masters 1 integrated 1 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. or CP 443-1 in PROFINET IO mode via interface module 0 Number of IO Controllers 6 via CP 4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode Number of IO Controllers 1 via CP 4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode Number of operable FMs and CPs (recommended) 1 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 slots; and number of slots and n			
Interface modules 6 Number of connectable IMs (total), max. 6 Number of connectable IM 460s, max. 6 Number of connectable IM 460s, max. 6 Number of DP masters 1 integrated 1 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. or CP 443-1 in PROFINET IO mode via interface module 0 Number of pluggable S5 modules (via adapter capsule in central device), max. 6 Number of IO Controllers 1 via CP 4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode via CP 4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode Number of operable FMs and CPs (recommended) 1 • 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 slots and number of connections • PROFIBUS and Ethernet CPs 14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller			
• Number of connectable IMs (total), max. 6 • Number of connectable IM 460s, max. 6 • Number of connectable IM 463s, max. 4; IM 463-2 Number of DP masters 1 • integrated 1 • via CP 10; CP 443-5 Extended • wind M 467 4 • Mixed mode IM + CP permitted No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode • via interface module 0 • via interface module 0 • Number of IO Controllers 6 • via CP 1 • via CP 1 • via interface module 0 • Number of pluggable S5 modules (via adapter capsule in central device), max. 6 Number of IO Controllers 1 • via CP 4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode Number of operable FMs and CPs (recommended) 1 • via CP 1 • via CP Limited by number of slots; CP 441: Limited by number of slots; CP 441: Limited by number of slots and number of connections • VEP, PIP CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections • PRO			
• Number of connectable IM 460s, max. 6 • Number of connectable IM 463s, max. 4; IM 463-2 Number of DP masters 1 • integrated 1 • 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. or CP 443-1 in PROFINET IO mode • via interface module 0 • via interface module 0 • Number of pluggable S5 modules (via adapter capsule in central device), max. 6 Number of IO Controllers 1 • via CP 1 • via CP 4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode Number of operable FMs and CPs (recommended) 1 • Via CP 1 • via CP 1 • via CP 1 • via CP 4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode Number of operable FMs and CPs (recommended) 1 • via CP 1 • Via CP 1 • Via CP 1 • Via CP 2 • Via CP 2		6	
• Number of connectable IM 463s, max.4; IM 463-2Number of DP masters• integrated1• via CP10; CP 443-5 Extended• via IM 4674• Mixed mode IM + CP permittedNo; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode• via interface module0• via interface module0• Number of pluggable S5 modules (via adapter capsule in central device), max.6Number of IO Controllers• integrated1• via CP4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO modeNumber of operable FMs and CPs (recommended)CP 440: Limited by number of slots and number of connections• FMLimited by number of slots and number of slots; CP 441: Limited by number of slots; CP			
Number of DP masters • integrated 1 • 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. or CP 443-1 in PROFINET IO mode • via interface module 0 • via interface module 0 • Number of pluggable S5 modules (via adapter capsule in central device), max. 6 Number of IO Controllers 1 • integrated 1 • via CP 4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode Number of operable FMs and CPs (recommended) Limited by number of slots and number of connections • CP, PtP CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections • CP, PtP CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections • PROFIBUS and Ethernet CPs 14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller			
• via CP10; CP 443-5 Extended• via IM 4674• Mixed mode IM + CP permitted0• Nimber of pluggable S5 modules (via adapter capsule in central device), max.0• Number of IO Controllers6• via CP1• via CP4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode• Number of operable FMs and CPs (recommended)1• FMLimited by number of slots and number of connections• CP, PtPCP 440: Limited by number of slots; CP 441: Limited by number of slots and number of slots and number of slots; CP 441: Limited by number of slots and number of slots and number of slots and purce of slots and prove of slots and purce of slots and prove of slots and purce of slots an			
• via IM 4674• Mixed mode IM + CP permittedNo; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode• via interface module0• Number of pluggable S5 modules (via adapter capsule in central device), max.6Number of IO Controllers1• via CP1• via CP4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode• Number of operable FMs and CPs (recommended)Limited by number of slots and number of connections• FM • CP, PtPLimited by number of slots; CP 441: Limited by number of slots and number of connections• PROFIBUS and Ethernet CPs14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller		1	
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PROFINET IO mode • via interface module 0 • Number of pluggable S5 modules (via adapter capsule in central device), max. 6 Number of IO Controllers 1 • integrated 1 • via CP 4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode Number of operable FMs and CPs (recommended) Elimited by number of slots and number of connections • FM Limited by number of slots and number of slots; CP 441: Limited by number of slots and number of connections • PROFIBUS and Ethernet CPs 14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller	• via IM 467	4	
• Number of pluggable S5 modules (via adapter capsule in central device), max.6Number of IO Controllers1• integrated1• via CP4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO modeNumber of operable FMs and CPs (recommended)I• FMLimited by number of slots and number of connections• CP, PtPCP 440: Limited by number of slots; CP 441: Limited by number of slots and number of slots and number of slots and provide the store of slots and provide the slote of slote store of slote slote of slote slo	Mixed mode IM + CP permitted		
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• integrated 1 • via CP 4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode 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 slots and number of connections • PROFIBUS and Ethernet CPs 14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller	central device), max.	6	
• via CP 4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode Number of operable FMs and CPs (recommended) • FM • 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 slots and number of connections • PROFIBUS and Ethernet CPs 14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller	Number of IO Controllers		
types in PROFINET IO mode Number of operable FMs and CPs (recommended) • FM • CP, PtP • CP, PtP • PROFIBUS and Ethernet CPs • PROFIBUS and Ethernet CPs 14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller	-		
 FM CP, PtP CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections PROFIBUS and Ethernet CPs CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections PROFIBUS and Ethernet CPs 14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller 	• via CP		
 CP, PtP CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections PROFIBUS and Ethernet CPs 14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller 	Number of operable FMs and CPs (recommended)		
PROFIBUS and Ethernet CPs PROFIBUS and Ethernet CPs 14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller	• FM	Limited by number of slots and number of connections	
• PROFIBUS and Ethernet CPs 14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller	• CP, PtP		
	PROFIBUS and Ethernet CPs	14; In total max. 10 CPs as DP master and PROFINET controller, of which up	
	Slots		

required slots	1			
Time of day				
Clock				
 Hardware clock (real-time) 	Yes			
 retentive and synchronizable 	Yes			
Resolution	1 ms			
 Deviation per day (buffered), max. 	1.7 s; Power off			
 Deviation per day (unbuffered), max. 	8.6 s; For power On			
Operating hours counter				
Number	16			
Number/Number range	0 to 15			
 Range of values 	SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours			
Granularity	1 h			
retentive	Yes			
Clock synchronization				
 supported 	Yes			
• to MPI, master	Yes			
• on MPI, device	Yes			
• to DP, master	Yes			
• on DP, device	Yes			
• in AS, master	Yes			
• in AS, device	Yes			
• on Ethernet via NTP	Yes; As client			
• to IF 964 DP	No			
Time difference in system when synchronizing via				
• Ethernet, max.	10 ms			
• MPI, max.	200 ms			
Interfaces				
Interfaces/bus type	1 x MPI/PROFIBUS DP, 1 x PROFINET (2 ports)			
Number of RS 485 interfaces	1; Combined MPI / PROFIBUS DP			
1. Interface				
	MPI/PROFIBUS DP			
Interface type Isolated	MPI/PROFIBUS DP Yes			
Interface type Isolated				
Interface type				
Interface type Isolated Interface types • RS 485	Yes			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max.	Yes Yes			
Interface type Isolated Interface types • RS 485	Yes Yes			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols	Yes Yes 150 mA Yes			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI	Yes Yes 150 mA			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master	Yes Yes 150 mA Yes Yes			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device	Yes Yes 150 mA Yes Yes Yes			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI	Yes Yes 150 mA Yes Yes			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI	Yes Yes 150 mA Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections	Yes Yes 150 mA Yes Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections • Transmission rate, max.	Yes Yes 150 mA Yes Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections • Transmission rate, max. Services	Yes Yes 150 mA Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections • Transmission rate, max. Services — PG/OP communication	Yes Yes 150 mA Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections • Transmission rate, max. Services — PG/OP communication — Routing	Yes Yes 150 mA Yes Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections • Transmission rate, max. Services - PG/OP communication - Routing - Global data communication	Yes Yes 150 mA Yes Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections • Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication	Yes Yes 150 mA Yes Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes			
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication	Yes Yes 150 mA Yes Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes			
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 commun	Yes Yes 150 mA Yes Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections • Transmission rate, max. Services • PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication, as client - S7 communication, as server	Yes Yes 150 mA Yes Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes			
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 communication S7 communication S7 communication, as client S7 communication, as server PROFIBUS DP master	Yes Yes 150 mA Yes Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections • Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server PROFIBUS DP master • Number of connections, max.	Yes Yes 150 mA Yes Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye			
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max.	Yes Yes 150 mA Yes Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye			
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP device MPI Number of connections Transmission rate, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication, as server PROFIBUS DP master Number of connections, max. Transmission rate, max. Transmission rate, max. Transmission rate, max. max. number of DP devices	Yes Yes 150 mA Yes Yes Yes Yes 32; If a diagnostics repeater is used on the line, the number of connection resources on the line is reduced by 1 12 Mbit/s Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections • Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • Transmission rate, max. • Transmission rate, max. • max. number of DP devices Services — PG/OP communication	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes			
Interface type Isolated Interface types • RS 485 • Output current of the interface, max. Protocols • MPI • PROFIBUS DP master • PROFIBUS DP device MPI • Number of connections • Transmission rate, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server PROFIBUS DP master • Number of connections, max. • Transmission rate, max. • Transmission rate, max. • max. number of DP devices Services	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes			

— S7 basic communication	Yes
— S7 communication	Yes
 — S7 communication, as client 	Yes
 — S7 communication, as server 	Yes
— Equidistance	Yes
— Isochronous mode	Yes
- SYNC/FREEZE	Yes
- activation/deactivation of DP devices	Yes
 Direct data exchange (slave-to-slave communication) 	Yes
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
User data per DP device	
- user data per DP device, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
1st interface / PROFIBUS DP device / header	
Number of connections	16
• GSD file	http://support.automation.siemens.com/WW/view/en/113652
 Transmission rate, max. 	12 Mbit/s
 automatic baud rate search 	No
 Address area, max. 	32; Virtual slots
User data per address area, max.	32 byte
- of which consistent, max.	32 byte
Services	
— PG/OP communication	Yes; with interface active
- Routing	Yes; with interface active
- Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
— S7 communication, as client	Yes
- S7 communication, as server	Yes
— Direct data exchange (slave-to-slave	No
communication)	
— DPV1	No
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
2. Interface	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes; Autosensing
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	Yes; Assignment by higher-level IO-Controller or by the user program with SFB104 "IP_CONF"
Interface types	
• RJ 45 (Ethernet)	Yes
Number of ports	2
integrated switch	Yes
Protocols	
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
PROFINET CBA	Yes
PROFIBUS DP master	No
PROFIBUS DP device	No
Open IE communication	Yes
Web server	Yes

Point-to-point connection	No		
Media redundancy	Yes		
PROFINET IO Controller			
Transmission rate, max.	100 Mbit/s		
Services			
- PG/OP communication	Yes		
- S7 communication	Yes		
— Isochronous mode	Yes; Only with IRT and the High Performance option		
— Shared device	Yes		
- Prioritized startup	Yes		
— 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 in line, max.	64		
 — Number of IO 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		
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; 8 parallel calls of the SFC 12 "D_ACT_DP" possible per line. Max. 32 IO Devices changing during operation (partner ports) are supported		
- Device replacement without swap medium	Yes		
— Send cycles	250 $\mu s,$ 500 $\mu s,$ 1 ms, 2 ms, 4 ms additionally with IRT with high performance: 250 μs to 4 ms in 125 μs frame		
— Updating time	250 μ s to 512 ms; minimum value depends on preset communication share for PROFINET IO, on the number of IO Devices and on the amount of configured user data, see PROFINET system description		
Address area			
— Inputs, max.	4 kbyte		
— Outputs, max.	4 kbyte		
— User data consistency, max.	1 024 byte		
PROFINET IO Device			
Services			
— PG/OP communication	Yes		
— S7 communication	Yes		
— Isochronous mode	No		
— IRT	Yes		
— Prioritized startup	Yes		
— Shared device	Yes		
 — Number of IO Controllers with shared device, max. 	2		
Transfer memory			
— Inputs, max.	1 440 byte; Per IO Controller with shared device		
— Outputs, max.	1 440 byte; Per IO Controller with shared device		
Submodules			
— Number, max.	64		
— User data per submodule, max.	1 024 byte		
PROFINET CBA			
acyclic transmission	Yes		
cyclic transmission	Yes		
Open IE communication			
 Number of connections, max. 	46		
Local port numbers used at the system end	0, 20, 21, 25, 80, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535		
Keep-alive function, supported	Yes		
Protocols			
Redundancy mode			
Media redundancy			
 — Switchover time on line break, typ. 	200 ms		

— Number of stations in the ring, max.	50		
SIMATIC communication			
S7 routing	Yes		
Open IE communication			
• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs		
- Number of connections, max.	46		
— Data length, max.	32 kbyte		
— several passive connections per port, supported	Yes		
• ISO-on-TCP (RFC1006)	Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs		
- Number of connections, max.	46		
— Data length, max.	32 kbyte; 1 452 bytes via CP 443-1 Adv.		
• UDP	Yes; via integrated PROFINET interface and loadable FBs		
- Number of connections, max.	46		
— Data length, max.	1 472 byte		
Web server			
supported	Yes		
 User-defined websites 	Yes		
Number of HTTP clients	5		
Isochronous mode			
Equidistance	Yes		
Number of DP masters with isochronous mode	1		
User data per isochronous slave, max.	244 byte		
shortest clock pulse	1.5 ms; 0.5 ms without use of SFC 126, 127		
max. cycle	32 ms		
communication functions / header			
PG/OP communication	Yes		
Number of connectable OPs with message processing	47; When using Alarm_S/SQ and Alarm_D/DQ		
Number of connectable OPs without message processing	47		
Data record routing	Yes		
Global data communication	Va		
supported	Yes		
Number of GD packets, transmitter, max	8		
 Number of GD packets, transmitter, max. Number of GD packets, receiver, max. 	8		
 Number of GD packets, receiver, max. Size of GD packets, max. 	54 byte		
 Size of GD packet (of which consistent), max. 	1 variable		
S7 basic communication			
• supported	Yes		
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		
• User data per job, max.	8 kbyte		
• User data per job (of which consistent), max.	240 byte		
Number of simultaneous AG-SEND/AG-RECV orders per	24/24		
CPU, max.			
Standard communication (FMS)			
supported	Yes; Via CP and loadable FB		
communication functions / PROFINET CBA (with set target commu			
Setpoint for the CPU communication load	20 %		
Number of remote interconnection partners number of master/device functions	32		
number of master/device functions total of all master/device connections	150		
 total of all master/device connections data length of all incoming master/device connections, 	4 500 45 000 byte		
 data length of all incoming master/device connections, max. 			
max.			

 data length of all outgoing master/device connections, max. 	45 000 byte			
Number of device-internal and PROFIBUS	1 000			
interconnections Data length of device-internal und PROFIBUS 	16 000 byte			
interconnections, max.				
Data length per connection, max.	2 000 byte			
performance data / PROFINET CBA / remote interconnection /				
— Sampling interval, min.	200 ms; Depending on preset communication load, number of interconnections and data length used			
 — Number of incoming interconnections 	250			
 Number of outgoing interconnections 	250			
 — Data length of all incoming interconnections, max. 	8 000 byte			
 — Data length of all outgoing interconnections, max. 	8 000 byte			
 — Data length per connection, max. 	2 000 byte			
performance data / PROFINET CBA / remote interconnection /	/ with cyclic transfer / header			
— Transmission frequency: Transmission interval, min.	1 ms; Depending on preset communication load, number of interconnections and data length used			
 — Number of incoming interconnections 	300			
 — Number of outgoing interconnections 	300			
 — Data length of all incoming interconnections, max. 	4 800 byte			
 — Data length of all outgoing interconnections, max. 	4 800 byte			
— Data length per connection, max.	450 byte			
performance data / PROFINET CBA / HMI variables via PROF	INET / acyclic / header			
— Number of stations that can log on for HMI variables (PN OPC/iMap)	2x PN OPC/1x iMap			
— HMI variable updating	500 ms			
— Number of HMI variables	1 000			
— Data length of all HMI variables, max.	32 000 byte			
performance data / PROFINET CBA / PROFIBUS proxy function				
— supported	Yes; 32 PROFIBUS slaves max. connectable			
— Data length per connection, max.	240 byte; Slave-dependent			
Number of connections				
• overall	48			
 usable for PG communication 	47			
 reserved for PG communication 	1			
- adjustable for PG communication, max.	0			
usable for OP communication	47			
 reserved for OP communication 	1			
— adjustable for OP communication, max.	0			
usable for S7 basic communication	46			
 reserved for S7 basic communication 	0			
— adjustable for S7 basic communication, max.				
•	0			
 usable for S7 communication 	0 46			
	46			
- reserved for S7 communication	46 0			
reserved for S7 communicationadjustable for S7 communication, max.	46 0 0			
 reserved for S7 communication adjustable for S7 communication, max. usable for routing 	46 0 0 23			
 reserved for S7 communication adjustable for S7 communication, max. usable for routing reserved for routing 	46 0 0 23 0			
 reserved for S7 communication adjustable for S7 communication, max. usable for routing reserved for routing adjustable for routing, max. 	46 0 0 23			
 reserved for S7 communication adjustable for S7 communication, max. usable for routing reserved for routing adjustable for routing, max. S7 message functions	46 0 0 23 0 0			
 reserved for S7 communication adjustable for S7 communication, max. usable for routing reserved for routing adjustable for routing, max. S7 message functions Number of login stations for message functions, max.	46 0 23 0 0 0 47; Max. 47 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC)			
 reserved for S7 communication adjustable for S7 communication, max. usable for routing reserved for routing adjustable for routing, max. S7 message functions Number of login stations for message functions, max. Symbol-related messages 	46 0 23 0 0 47; Max. 47 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes			
 reserved for S7 communication adjustable for S7 communication, max. usable for routing reserved for routing adjustable for routing, max. S7 message functions Number of login stations for message functions, max. Symbol-related messages SCAN procedure	46 0 23 0 0 47; Max. 47 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes			
 reserved for S7 communication adjustable for S7 communication, max. usable for routing reserved for routing adjustable for routing, max. S7 message functions Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms 	46 0 23 0 0 47; Max. 47 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes			
 reserved for S7 communication adjustable for S7 communication, max. usable for routing reserved for routing adjustable for routing, max. S7 message functions Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages 	46 0 23 0 0 47; Max. 47 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes			
 reserved for S7 communication adjustable for S7 communication, max. usable for routing reserved for routing adjustable for routing adjustable for routing, max. S7 message functions Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm_S blocks, max. 	46 0 23 0 23 0 0 23 0 0 23 0 0 23 0 0 23 0 0 23 0 0 23 0 0 23 0 0 23 0 0 23 0 24 25 25 20 20 25 25 20 25 25 25 20 25 25 25 25 25 25 25 25 25 25			
 reserved for S7 communication adjustable for S7 communication, max. usable for routing reserved for routing adjustable for routing, max. S7 message functions Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm_S blocks, max. Alarm 8-blocks 	46 0 23 0 23 0 0 0 47; Max. 47 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 250; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes			
 reserved for S7 communication adjustable for S7 communication, max. usable for routing reserved for routing adjustable for routing adjustable for routing, max. S7 message functions Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm_S blocks, max. 	46 0 23 0 0 47; Max. 47 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 250; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 300			
 reserved for S7 communication adjustable for S7 communication, max. usable for routing reserved for routing adjustable for routing, max. S7 message functions Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm_S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication 	46 0 23 0 0 47; Max. 47 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes Yes 250; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 300 150			
 reserved for S7 communication adjustable for S7 communication, max. usable for routing reserved for routing adjustable for routing adjustable for routing, max. S7 message functions Number of login stations for message functions, max. Symbol-related messages SCAN procedure Program alarms Process diagnostic messages simultaneously active Alarm_S blocks, max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. 	46 0 23 0 0 47; Max. 47 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) Yes Yes Yes Yes 250; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks Yes 300			

AR_SEND)				
Number of messages	050			
• overall, max.	256			
• in 100 ms grid, max.	0			
• in 500 ms grid, max.	256			
• in 1000 ms grid, max.	256			
Number of additional values				
• with 100 ms grid, max.	0			
• with 500, 1000 ms grid, max.	1			
Test commissioning functions				
Status block	Yes; Up to 16 simultaneously			
Single step	Yes			
Number of breakpoints	16			
Status/control				
 Status/control variable 	Yes; Up to 16 variable tables			
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters			
Number of variables, max.	70; Status/control			
Forcing				
• Forcing	Yes			
 Forcing, variables 	Inputs/outputs, bit memories, distributed I/Os			
 Number of variables, max. 	64			
Diagnostic buffer				
• present	Yes			
Number of entries, max.	3 200			
— adjustable	Yes			
— preset	120			
Service data				
• can be read out	Yes			
Standards, approvals, certificates				
CE mark	Yes			
CSA approval	Yes			
UL approval	Yes			
cULus	Yes			
FM approval	Yes			
RCM (formerly C-TICK)	Yes			
KC approval	Yes			
EAC (formerly Gost-R)	Yes			
Use in hazardous areas				
• ATEX	ATEX II 3G Ex nA IIC T4 Gc			
Ambient conditions				
Ambient temperature during operation				
· · · ·	0°0			
• min.	0°C			
max. configuration / header				
Configuration software				
	No.			
• STEP 7	Yes			
configuration / programming / header				
configuration / programming / header • Command set	see instruction list			
configuration / programming / header • Command set • Nesting levels	see instruction list 7			
configuration / programming / header • Command set • Nesting levels • Access to consistent data in process image	see instruction list 7 Yes			
configuration / programming / header • Command set • Nesting levels • Access to consistent data in process image • System functions (SFC)	see instruction list 7 Yes see instruction list			
configuration / programming / header • Command set • Nesting levels • Access to consistent data in process image • System functions (SFC) • System function blocks (SFB)	see instruction list 7 Yes			
configuration / programming / header • Command set • Nesting levels • Access to consistent data in process image • System functions (SFC) • System function blocks (SFB) Programming language	see instruction list 7 Yes see instruction list see instruction list			
configuration / programming / header • Command set • Nesting levels • Access to consistent data in process image • System functions (SFC) • System function blocks (SFB) Programming language — LAD	see instruction list 7 Yes see instruction list see instruction list			
configuration / programming / header • Command set • Nesting levels • Access to consistent data in process image • System functions (SFC) • System function blocks (SFB) Programming language — LAD — FBD	see instruction list 7 Yes see instruction list see instruction list			
configuration / programming / header • Command set • Nesting levels • Access to consistent data in process image • System functions (SFC) • System function blocks (SFB) Programming language — LAD	see instruction list 7 Yes see instruction list see instruction list			
configuration / programming / header • Command set • Nesting levels • Access to consistent data in process image • System functions (SFC) • System function blocks (SFB) Programming language — LAD — FBD	see instruction list 7 Yes see instruction list see instruction list Yes Yes			
configuration / programming / header • Command set • Nesting levels • Access to consistent data in process image • System functions (SFC) • System function blocks (SFB) Programming language - LAD - FBD - STL	See instruction list 7 Yes see instruction list see instruction list Yes Yes Yes			
configuration / programming / header • Command set • Nesting levels • Access to consistent data in process image • System functions (SFC) • System function blocks (SFB) Programming language - LAD - FBD - STL - SCL	see instruction list 7 Yes see instruction list Yes Yes			

configuration / programming / number of simultaneously active SFC / header				
- DPSYC_FR	2; SFC 11; per interface			
- D_ACT_DP	8; SFC 12; per interface			
- RD_REC	8; SFC 59; per interface			
- WR_REC	8; SFC 58; per interface			
— WR_PARM	8; SFC 55; per interface			
— PARM_MOD	1; SFC 57; per interface			
- WR_DPARM	2; SFC 56; per interface			
— DPNRM_DG	8; SFC 13; per interface			
- RDSYSST	8; SFC 51			
- DP_TOPOL	1; SFC 103; per interface			
configuration / programming / number of simultaneously active	SFB / header			
- RDREC	8; SFB 52; per interface, but not more than 32 across all external interfaces			
— WRREC	8; SFB 53; per interface, but not more than 32 across all external interfaces			
Know-how protection				
 User program protection/password protection 	Yes			
Block encryption	Yes; With S7 block Privacy			
Dimensions				
Width	25 mm			
Height	290 mm			
Depth	219 mm			
Weights				
Weight, approx.	750 g			
Classifications				

	Version	Classification
eClass	14	27-24-22-07
eClass	12	27-24-22-07
eClass	9.1	27-24-22-07
eClass	9	27-24-22-07
eClass	8	27-24-22-07
eClass	7.1	27-24-22-07
eClass	6	27-24-22-07
ETIM	9	EC000236
ETIM	8	EC000236
ETIM	7	EC000236
IDEA	4	3565
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

CE EG-Konf.	<u>Miscellaneous</u>	UK CA	<u>Miscellaneous</u>	RCM
For use in hazardous	locations			
IECE×	K ATEX	EM	IECEx	<u>Type Examination Cer-</u> <u>tificate</u>
For use in hazard- ous locations	Marine / Shipping			



last modified:

12/8/2024 🖸