## **SIEMENS**

## **Data sheet**



SIPLUS ET 200SP CPU 1512SP-1 PN based on 6ES7512-1DK01-0AB0 with conformal coating, -40...+60 °C, central processing unit with work memory 200 KB for program and 1 MB for data, 1st interface, PROFINET IRT with 3-port switch, 48 ns bit performance, SIMATIC Memory Card required, BusAdapter required for port 1 and 2

Figure similar

* 11 - 1 - 1	
General information	
Product type designation	CPU 1512SP-1 PN
based on	6ES7512-1DK01-0AB0
Product function	
● I&M data	Yes; I&M0 to I&M3
<ul> <li>Module swapping during operation (hot swapping)</li> </ul>	Yes; Multi-hot swapping
Isochronous mode	Yes; Only with PROFINET; with minimum OB 6x cycle of 625 µs
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	see entry ID: 109746275
Configuration control	
via dataset	Yes
Control elements	
Mode selector switch	1
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Mains buffering	
Mains/voltage failure stored energy time	5 ms
Input current	
Current consumption (rated value)	0.6 A
Current consumption, max.	0.9 A
Inrush current, max.	4.7 A; Rated value
I²t	0.14 A²·s
Power	
Infeed power to the backplane bus	8.75 W
Power loss	
Power loss, typ.	5.6 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
integrated (for program)	200 kbyte
• integrated (for data)	1 Mbyte
Load memory	
<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	32 Gbyte
Backup	
maintenance-free	Yes

CPU processing times	
for bit operations, typ.	48 ns
for word operations, typ.	58 ns
for fixed point arithmetic, typ.	77 ns
for floating point arithmetic, typ.	307 ns
CPU-blocks	
Number of elements (total)	4 000; Blocks (OB, FB, FC, DB) and UDTs
DB	. 000, 2,000,0 (02, 12, 10, 22) and 02.10
Number range	1 60 999; subdivided into: number range that can be used by the user: 1
, and the second	59 999, and number range of DBs created via SFC 86: 60 000 60 999
• Size, max.	1 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
• Size, max.	200 kbyte
FC	
Number range	0 65 535
• Size, max.	200 kbyte
OB O:	20011
• Size, max.	200 kbyte
Number of free cycle OBs	100
Number of time alarm OBs	20
Number of delay alarm OBs	20
Number of cyclic interrupt OBs     Number of presses class OBs	20; With minimum OB 3x cycle of 500 μs
Number of process alarm OBs	50
Number of DPV1 alarm OBs	3
Number of isochronous mode OBs	1
Number of technology synchronous alarm OBs	2
Number of startup OBs	100
Number of asynchronous error OBs	4
Number of synchronous error OBs	2
Number of diagnostic alarm OBs	1
Nesting depth	24
per priority class  Counters, timers and their retentivity	24
S7 counter	
Number	2 048
Retentivity	2 040
— adjustable	Yes
IEC counter	165
Number	Any (only limited by the main memory)
Retentivity	Any (only limited by the main memory)
— adjustable	Yes
S7 times	
• Number	2 048
Retentivity	
— adjustable	Yes
·	
IEC timer	
■ Number	Any (only limited by the main memory)
	Any (only limited by the main memory)
Number	Any (only limited by the main memory) Yes
Number Retentivity	
Number Retentivity — adjustable	Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs,
Number     Retentivity     — adjustable  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.	Yes
Number     Retentivity     — adjustable  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.  Flag	Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB
Number Retentivity — adjustable  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.  Flag  Size, max.	Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB  16 kbyte
Number Retentivity — adjustable  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.  Flag  Size, max. Number of clock memories	Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB
Number Retentivity — adjustable  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.  Flag  Size, max.	Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB  16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte
Number Retentivity — adjustable  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.  Flag  Size, max. Number of clock memories  Data blocks Retentivity adjustable	Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB  16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte  Yes
Number Retentivity — adjustable  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.  Flag  Size, max. Number of clock memories  Data blocks Retentivity adjustable Retentivity preset	Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB  16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte
Number Retentivity — adjustable  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.  Flag  Size, max. Number of clock memories  Data blocks Retentivity adjustable	Yes  128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB  16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte  Yes

Address area	
Number of IO modules	2 048; max. number of modules / submodules
I/O address area	
• Inputs	32 kbyte; All inputs are in the process image
<ul><li>Outputs</li></ul>	32 kbyte; All outputs are in the process image
per integrated IO subsystem	
— Inputs (volume)	8 kbyte
<ul><li>Outputs (volume)</li></ul>	8 kbyte
per CM/CP	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	
<ul> <li>Number of subprocess images, max.</li> </ul>	32
Address space per module	
<ul> <li>Address space per module, max.</li> </ul>	288 byte; For input and output data respectively
Address space per station	
Address space per station, max.	2 560 byte; for central inputs and outputs; depending on configuration; 2 048 bytes for ET 200SP modules + 512 bytes for ET 200AL modules
Hardware configuration	
Number of distributed IO systems	32; A distributed I/O system is characterized not only by the integration of distributed I/O via PROFINET or PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules or links (e.g. IE/PB-Link)
Number of DP masters	
• Via CM	1
Number of IO Controllers	
• integrated	1
• Via CM	0
Rack	
Modules per rack, max.	80; CPU + 64 modules + server module (mounting width max. 1 m) + 16 ET 200AL modules
<ul> <li>Quantity of operable ET 200SP modules, max.</li> </ul>	64
<ul> <li>Quantity of operable ET 200AL modules, max.</li> </ul>	16
<ul> <li>Number of lines, max.</li> </ul>	1
PtP CM	
Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available slots
Time of day	
Clock	
• Type	Hardware clock
Backup time	6 wk; At 40 °C ambient temperature, typically
<ul> <li>Deviation per day, max.</li> </ul>	10 s; Typ.: 2 s
Operating hours counter	
Number	16
Clock synchronization	
• supported	Yes
• to DP, master	Yes; Via CM DP module
• on DP, device	Yes; Via CM DP module
• in AS, master	Yes
• in AS, device	Yes
on Ethernet via NTP	Yes
Interfaces	
Number of PROFINET interfaces	1
Number of PROFIBUS interfaces	1; Via CM DP module
Optical interface	Yes; via BusAdapter
1. Interface	
Interface types	
• RJ 45 (Ethernet)	Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45
Number of ports	3; 1. integr. + 2. via BusAdapter
integrated switch	Yes
BusAdapter (PROFINET)	Yes; compatible BusAdapters: BA 2x RJ45, BA 2x M12, BA 2x FC, BA 2x LC, BA LC/RJ45, BA LC/FC, BA 2x SCRJ, BA SCRJ/RJ45, BA SCRJ/FC,

set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data  Update time for IRT  — for send cycle of 250 μs  — for send cycle of 500 μs  — for send cycle of 1 ms  — for send cycle of 2 ms  — for send cycle of 4 ms  set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data  250 μs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 500 μs of the isochronous OB is decisive  500 μs to 8 ms  1 ms to 16 ms  2 ms to 32 ms  4 ms to 64 ms		
PROFINET IO Device SIMATIC communication Yes Open IE Communication Yes Web server Yes Ned a redundancy Yes, INRP Automanager according to IEC 62439-2 Edition 2.0  PROFINET IO Controller  Services  PGOP communication New Yes PROFINET IO Controller  Services  PGOP communication Yes Services  PGOP communication Yes Yes PROFINET IO Controller  Services  PGOP communication Yes Ves PROFINET IO Controller  Services  PROFINET IO Controller  Services  PROFINET IO Controller  Services  PROFINET IO Controller  Yes Services  PROFINET IO Controller  Yes Services  PROFINET IO Controller  Yes Requirement: IRT and isochronous mode (MRPD optional) Yes Yes Promitted startup Yes, Proving Interpropriam  Yes, Max. 32 PROFINET Interpropriam  Yes, Namer of Interpropriam  Yes, Value Interpropriam  Yes  Yes PROFINET INTERPROPRIAM Interpropriam  Yes Yes PROFINET INTERPROPRIAM Interpropriam  Yes PROFINET INTERPROPROPRIAM Interpropriam  Yes PROFINET INTERPROPRIAM INTERPROPRIAM Interpropriam  Yes PROFINET INTERPROPROPRIAM Interpropriam  Yes PROFINET INTERPROPROPROPRIAM Interpropriam  Yes PROFINET INTERPROPROPROPROPROPROPROPROPROPROPROPROPRO	• IP protocol	Yes; IPv4
• SIMATIC communication • Open IE communication • Web server • Media redundancy • Per Services  - PGORP Controlled  Services  - PGORP Communication - Iscontroous mode - Iscontroous mo	PROFINET IO Controller	Yes
• Open IE communication • Ves   Services • Media redundancy • Media redundancy • Ves; MRP Automanager according to IEC 62439-2 Edition 2.0  PROFINET IO Controller  Services  - PG(OP communication - Iscort consumments - Direct data exchange - Direct data exchange - PROFInergy - PROFInergy - PROFInergy - PROFInergy - Profitzed statup - Number of connectable IO Devices, max Of which IO devices with IRT, max Of which In Ide, max Number of connectable Io Devices for RT, max Of which in Inin, max Number of IO Devices that can be simultaneously activate/disearchived, max Number of IO Devices that can be simultaneously activate/disearchived, max Number of IO Devices for RT, max Updating times - To send cycle of 250 µs - for send cycle of 250 µs - for send cycle of 150 µs - for send cycle of 250 µs - for send cycle of 250 µs - for send cycle of 250 µs - for send cycle of 150 µs - for send cycle of 250 µs - for send cycle of 250 µs - for send cycle of 150 µs - for	PROFINET IO Device	Yes
Web server  Media redundancy  PROFINET IO Controller  Services  - PGOP communication - Isochronous mode - Direct date exchange - IRT - PROFilenergy - Prioritized startup - Number of connectable IO Devices, max Number of connectable IO Devices, max Of which IO devices with IRT, max Of which IO devices with IRT, max Of which IO devices with IRT, max Which I of Devices per tool, max Number of IO Devices per tool, max Updating times  Update time for IRT - for send cycle of 250 µs - for send cycle of 2 ms - for send cycle of 2 ms - Whith IRT and parameterization of "odd" send cycles  Update time for IRT - for send cycle of 500 µs - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 500 µs - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 500 µs - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 4 ms - for send cycle of 4 ms - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 4 ms - for send cycle of 500 µs - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 1 ms	SIMATIC communication	Yes
PROFINE I of Controller  Services  - PGIOP communication - Isocritronous mode - Direct data exchange - PROFlenetry - PROFlenetry - PROFlenetry - Number of connectable IO Devices, max Number of connectable IO Devices, max Number of 10 Devices with IRT, max of which in line, max Number of 10 Devices that can be simultaneously activated/deactivated, max Number of 10 Devices per tool, max Updating times  - For send cycle of 250 µs - for send cycle of 10 ms - for send cycle of 10 ms - for send cycle of 250 µs - for send cycle of 4 ms - with IRT and parameterization of "odd" send cycles - for send cycle of 10 ms - for send cycle of 4 ms - with IRT and parameterization of "odd" send cycles - for send cycle of 10 ms - for send cycle of 250 µs - for send cycle of 250 µ	Open IE communication	Yes; Optionally also encrypted
Services  PGO/P communication  Isochronous mode  Per Color communication  Isochronous mode  Per Color communication  Proficitized state suchange  IRT  PROFienerry  Prioritized startup  Prioritized s	Web server	Yes
PG/OP communication   Yes	Media redundancy	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0
- PG/OP communication - Isochronous mode - PROFlenergy - Prioritized startup - Number of connectable Io Devices, max Of which In Ilen, max Of which In Ilen, max Isochronous mode - Number of Io Devices that can be simultaneously achivated/deachivated, max Number of Io Devices per tool, max Updating times - In Tor send cycle of 250 μs - For send cycle of 250 μs - For send cycle of 4 ms - With IRT and isochronous mode (MRPD optional) - Yes, Pax user program - Yes, Pax user program - Yes, Max. 32 PROFINET devices - Italy in 1512 distributed I/O devices can be connected via AS-I, PROFIBUS or PROFINET - For interestable Io Devices for RT, max Italy in 1512 distributed I/O devices can be connected via AS-I, PROFIBUS or PROFINET - For interestable Io Devices for RT, max Italy in 1512 distributed I/O devices can be connected via AS-I, PROFIBUS or PROFINET - Isochronous mode in the unitarian of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data - In the unitarian walls of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data - In the unitarian walls of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data - In the unitarian walls of the update time also depends on communication share set for PROFINET IO, on the number of IO devices and the unitarian walls of the update time also depends on communication of the unitarian walls of the update time also depends on communication walls of the update time also depends on communication of the unitarian walls of the update time also depends o	ROFINET IO Controller	
Scorbronous mode	Services	
- Direct data exchange - IRT - PROFilenergy - Prioritized startup - Number of connectable IO Devices, max Of which IO devices with IRT, max Of which IO devices with IRT, max Of which In line, max Number of IO Devices that can be simultaneously activated/deactivated, max Number of IO Devices per tool, max Updating times - Update time for IRT - For send cycle of 250 μs - For send cycle of 250 μs - For send cycle of 4 ms - With IRT and isochronous mode (MRPD optional) - For send cycle of 4 ms - With IRT and isochronous mode (MRPD optional) - For send cycle of 250 μs - For send cycle of 4 ms - With IRT and isochronous mode (MRPD optional) - For send cycle of 250 μs - For send cycle of 4 ms - With IRT and isochronous mode (MRPD optional) - For send cycle of 250 μs - For send cycle of 350 μs - For send cycle of 4 ms - For send cycle of 550 μs -	— PG/OP communication	Yes
- IRT - PROFlenergy - Prioritized startup - Number of connectable IO Devices, max Of which IO devices with IRT, max Of which IO devices with IRT, max Of which IO Devices for RT, max Of which IO Devices that can be simultaneously activated/deactivated/max Number of IO Devices per tool, max Updating times - Very Interface of PROFINET IO, on the number of IO devices, and on the quantity of configured user data For send cycle of 500 µs - For send cycle of 500 µs - For send cycle of 500 µs - For send cycle of 4 ms - For send cycle of 4 ms - With IRT and parameterization of "odd" send cycles - For send cycle of 10 ms - For send cycle o	— Isochronous mode	Yes
PROFilenergy Prioritized startup Number of connectable IO Devices, max. Power of Connectable IO Devices, max. Power of Connectable IO Devices of RT, max. Number of connectable IO Devices for RT, max. Number of connectable IO Devices for RT, max. Number of Devices that can be simultaneously activated/deactivated, max. Number of IO Devices per tool, max. Number of IRT  To resend cycle of 250 µs No send cycle of 1 ms No 16 ms No to 16 ms No to 18 ms No 18 ms to 16 ms No to 18 ms No 18 ms to 16 ms No to 18 ms No 19 ms to 19 ms No 19 ms to 512 ms No 19 ms to 512 ms No 19 ms to 512 ms No N	Direct data exchange	Yes; Requirement: IRT and isochronous mode (MRPD optional)
Prioritized startup  Number of connectable IO Devices, max.  Number of connectable IO Devices with IRT, max.  Number of Connectable IO Devices for RT, max.  Of which in line, max.  Number of IO Devices that can be simultaneously activated/deactivated, max.  Number of IO Devices that can be simultaneously activated/deactivated, max.  Number of IO Devices per tool, max.  Number of IO Device per tool, max.  Number of IO Device per tool, max.  Number of IO Device per tool, max.  Number of IO	— IRT	Yes
- Number of connectable IO Devices, max Of which IO devices with IRT, max Of which IO devices with IRT, max Number of connectable IO Devices for RT, max Of which in line, max Wumber of IO Devices that can be simultaneously activated/deactivated, max Number of IO Devices per tool, max Updating times - Updating times - For send cycle of 250 µs - For send cycle of 250 µs - For send cycle of 1 ms - For send cycle of 2 ms - With IRT and parameterization of "odd" send cycles - For send cycle of 250 µs - For send cycle of 4 ms - With IRT and parameterization of "odd" send cycles - For send cycle of 250 µs - For send cycle of 250 µs - For send cycle of 250 µs - For send cycle of 4 ms - With IRT and parameterization of "odd" send cycles - For send cycle of 4 ms - For send cycle of 500 µs - For send cycle of 4 ms - For send cycle of 4 ms - For send cycle of 4 ms - For send cycle of 500 µs - For	— PROFlenergy	Yes; per user program
PROFIBUS or PROFINET  Of which IO devices with IRT, max.  Number of Connectable IO Devices for RT, max.  of which in line, max.  Number of IO Devices that can be simultaneously activated/deactivated, max.  Number of IO Devices that can be simultaneously activated/deactivated, max.  Updating times  The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data  Update time for IRT  for send cycle of 250 µs  for send cycle of 500 µs  for send cycle of 1 ms  for send cycle of 1 ms  with IRT and parameterization of "odd" send cycles  Update time for RT  for send cycle of 250 µs  With IRT and parameterization of "odd" send cycles  Update time for RT  for send cycle of 250 µs  for send cycle of 350 µs  for send cycle of 4 ms  with IRT and parameterization of "odd" send cycles  Update time for RT  for send cycle of 500 µs  for send cycle of 500 µs  for send cycle of 500 µs  for send cycle of 4 ms  with 151 ms  FORINET IO Device  Services  PGIOP communication  Ves  PROFINET IO Device  Services  PROFINET IO Cevice  Services  PROFInergy  Services  PROFINERTOR  Services  PROFINERTOR  Servic	<ul> <li>Prioritized startup</li> </ul>	Yes; Max. 32 PROFINET devices
- Number of connectable IO Devices for RT, max of which in line, max Number of IO Devices that can be simultaneously activated/deactivated, max Number of IO Devices per tool, max Number of IO Devices per tool, max Updating times - Updating times - The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data - Update time for IRT - for send cycle of 250 µs - for send cycle of 550 µs - for send cycle of 550 µs - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - With IRT and parameterization of "odd" send cycles - With IRT and parameterization of "odd" send cycles - For send cycle of 250 µs - for send cycle of 250 µs - for send cycle of 250 µs - for send cycle of 550 µs - for send cycle of 1 ms - for send cycle of 550 µs - for send cycle of 550 µs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 1 ms - for send c	— Number of connectable IO Devices, max.	
- of which in line, max Number of IO Devices that can be simultaneously activated/deactivated, max Number of IO Devices per tool, max Updating times - The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data  Update time for IRT - for send cycle of 250 µs - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles - for send cycle of 250 µs - for send cycle of 250 µs - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 250 µs - for send cycle of 1 ms - with IRT and parameterization of "odd" send cycles - for send cycle of 250 µs - for send cycle of 250 µs - for send cycle of 250 µs - for send cycle of 500 µs - for send cycle of 4 ms - for send cycle of 500 µs - for send cycle of 500 µ	— Of which IO devices with IRT, max.	64
- Number of IO Devices that can be simultaneously activate/deactivated, max.  - Number of IO Devices per tool, max.  - Updating times  - Updating times  - Updating times  - The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data  - Update time for IRT  - for send cycle of 250 μs  - for send cycle of 500 μs  - for send cycle of 1 ms  - for send cycle of 1 ms  - for send cycle of 4 ms  - With IRT and parameterization of "odd" send cycles  - For send cycle of 250 μs  - For send cycle of 500 μs  - For send cycle of 500 μs  - For send cycle of 4 ms  - With IRT and parameterization of "odd" send cycles  - For send cycle of 500 μs  - For send cycle of 1 ms  - For send cycle of 1 ms  - For send cycle of 250 μs  - For send cycle of 1 ms  - For send cycle of 4 ms  - For send cycle of 500 μs  - For send cycle of 4 ms  - For send cycle of 500 μs  - For send cycle of 4 ms  - For send cycle of 500 μs  - For send cycle of 4 ms  - For send cycle of 4 ms  - For send cycle of 500 μs  - For send cycle of 4 ms  - For send cycle of 500 μs  - For send cycl	<ul> <li>Number of connectable IO Devices for RT, max.</li> </ul>	128
activeled/deactivated, max.  - Number of IO Devices per tool, max.  - Updating times  - Updating times  - Fro From Fine Times  - Fro send cycle of 250 μs  - For send cycle of 1 ms  - For send cycle of 2 ms  - For send cycle of 4 ms  - With IRT and parameterization of "odd" send cycles  - For send cycle of 500 μs  - For send cycle of 500 μs  - For send cycle of 500 μs  - For send cycle of 4 ms  - With IRT and parameterization of "odd" send cycles  - For send cycle of 500 μs  - For send cycle of 500 μs  - For send cycle of 500 μs  - For send cycle of 250 μs  - For send cycle of 500 μs  - For send cycle of 500 μs  - For send cycle of 500 μs  - For send cycle of 4 ms  - For send cycle of 500 μs  - For send cycle of 4 ms  - For send cycle of 500 μs  - For send cycle of 4 ms  - For send cycle of 500 μs  - For send cycle of 4 ms  - For send cycle of 500 μs  - For send	— of which in line, max.	128
The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data  Update time for IRT  — for send cycle of 250 μs — for send cycle of 500 μs — for send cycle of 100 μs — for send cycle of 1 ms — with IRT and parameterization of "odd" send cycles  Update time for RT — for send cycle of 250 μs — for send cycle of 500 μs — for send cycle of 1 ms — in the state is a send cycle of 250 μs — for send cycle of 250 μs — for send cycle of 4 ms — with IRT and parameterization of "odd" send cycles — for send cycle of 250 μs — for send cycle of 250 μs — for send cycle of 500 μs — for send cycle of 4 ms — in the state is a send cycle of 4 ms — for send cycle of 4 ms — yes to 512 ms — for send cycle of 4 ms — yes to 512 ms — for send cycle of 4 ms — yes per user program  PROFINET IO Device  Services — PG/OP communication — IRT — PROFlenergy — Shared device — Number of IO Controllers with shared device, max. — activation/deactivation of I-devices — Yes; per user program — Asset management record  Ves; per user program 2. Interface  Interf		8; in total across all interfaces
set for PRCFINET I O, on the number of IO devices, and on the quantity of configured user data  — for send cycle of 250 μs — for send cycle of 500 μs — for send cycle of 1 ms — for send cycle of 1 ms — for send cycle of 4 ms — for send cycle of 4 ms — with IRT and parameterization of "odd" send cycles — for send cycle of 2 ms — with IRT and parameterization of "odd" send cycles — for send cycle of 250 μs — for send cycle of 250 μs — for send cycle of 250 μs — with IRT and parameterization of "odd" send cycles — for send cycle of 250 μs — for send cycle of 250 μs — for send cycle of 250 μs — for send cycle of 1 ms — for send cycle of 1 ms — for send cycle of 2 ms — for send cycle of 2 ms — for send cycle of 4 ms  — the send cycle of 2 ms — for send cycle of 4 ms  — the send cycle of 2 ms — for send cycle of 2 ms — the send cycle of 2	<ul> <li>Number of IO Devices per tool, max.</li> </ul>	8
Update time for IRT  — for send cycle of 250 µs — for send cycle of 500 µs — for send cycle of 1 ms — for send cycle of 2 ms — for send cycle of 2 ms — for send cycle of 2 ms — for send cycle of 4 ms — with IRT and parameterization of "odd" send cycles — With IRT and parameterization of "odd" send cycles — For send cycle of 2 ms — with IRT and parameterization of "odd" send cycles — For send cycle of 250 µs — for send cycle of 500 µs — for send cycle of 250 µs — for send cycle of 500 µs — for send cycle of 1 ms — for send cycle of 1 ms — for send cycle of 4 ms — for send cycle of 500 µs — for send cycle of 4 ms — for send cycle of 500 µs —	— Updating times	
- for send cycle of 250 µs  - for send cycle of 500 µs  - for send cycle of 500 µs  - for send cycle of 1 ms  - for send cycle of 2 ms  - for send cycle of 4 ms  - for send cycle of 4 ms  - With IRT and parameterization of "odd" send cycles  - For send cycle of 500 µs  - for send cycle of 500 µs  - With IRT and parameterization of "odd" send cycles  - For send cycle of 500 µs  - for send cycle of 2 ms  - for send cycle of 2 ms  - for send cycle of 2 ms  - for send cycle of 4 ms  - for send cycle of 4 ms  - for send cycle of 500 µs  - for send cycle of 500 µs  - for send cycle of 1 ms  - for send cycle of 2 ms  - for send cycle of 2 ms  - for send cycle of 8 ms  - for send cycle of 9 ms  - for send cycle of 1 ms  - for send cycle of 1 ms  - for send cycle of 2 ms  - for send cycle of 2 ms  - for send cycle of 2 ms  - for send cycle of 3 ms  - for send cycle of 5 ms  - for send cycle of 1 ms  - for send cycle of 1 ms  - for send cycle of 2 ms  - for send cycle of 2 ms  - for send cycle of 3 ms  - for send cycle of 1 ms  - for send cycle of 1 ms  - for send cycle of 2 ms  - for send cycle of 2 ms  - for send cycle of 5 ms  - for send	Update time for IRT	oomigarod door data
update time of 500 μs of the isochronous OB is decisive  — for send cycle of 1 ms — for send cycle of 2 ms — for send cycle of 4 ms — for send cycle of 4 ms — with IRT and parameterization of "odd" send cycles — Vith IRT and parameterization of "odd" send cycles — For send cycle of 250 μs — for send cycle of 250 μs — for send cycle of 500 μs — for send cycle of 500 μs — for send cycle of 500 μs — for send cycle of 1 ms — for send cycle of 2 ms — for send cycle of 2 ms — for send cycle of 4 ms — for send cycle of 800 μs — for send cycle of 900 μs — for send cycle of 1 μs — for send cycle of 900 μs — for send cycle of 1 μs — for send cycle of 900 μs — for send cycle of 1 μs — for send cycle of 250 μs — for send cycle of 1 μs — for send	•	250 us to 4 ms: Note: In the case of IRT with isochronous mode, the minimum
- for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles  Update time = set "odd" send clock (any multiple of 125 μs: 375 μs, 625 μs 875 μs)  Update time for RT - for send cycle of 250 μs - for send cycle of 500 μs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 9 ms - for send cycle of 1 ms - for send cycle of 12 ms - for send		update time of 500 μs of the isochronous OB is decisive
- for send cycle of 2 ms - for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles  - With IRT and parameterization of "odd" send cycles  - With IRT and parameterization of "odd" send cycles  - For send cycle of 250 μs - For send cycle of 250 μs - For send cycle of 500 μs - For send cycle of 1 ms - For send cycle of 1 ms - For send cycle of 2 ms - For send cycle of 4 ms - For send cycle of 5 ms - For send cycle of 6 ms - For send cycle of 1 ms - For send cycle of 250 μs - For send cycle of 1 ms - For send cycle of 250 μs - For send cycle of 1 ms - For send cycle of 250 μs - For send cycle of 250 μ	— for send cycle of 500 μs	500 μs to 8 ms
- for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles  - With IRT and parameterization of "odd" send cycles  - Update time for RT  - for send cycle of 250 μs - for send cycle of 500 μs - for send cycle of 500 μs - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - FOFINET IO Device  - PG/OP communication - Isochronous mode - IRT - PROFlenergy - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record - Yes; per user program - Asset management record - Yes; per user program - Shared bypes - RS 485 - Number of ports - Number of ports - Ves; Via CM DP module - Number of ports - Trotocols	— for send cycle of 1 ms	1 ms to 16 ms
- With IRT and parameterization of "odd" send cycles 875 μs)  Update time for RT  - for send cycle of 250 μs - for send cycle of 500 μs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 500 μs - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 2 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 500 μs - for send cycle of 500	— for send cycle of 2 ms	2 ms to 32 ms
Update time for RT  for send cycle of 250 µs	— for send cycle of 4 ms	4 ms to 64 ms
Update time for RT  - for send cycle of 250 µs - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 500 µs - for send cycle of 4 ms - PROFINET IO Device  Services - PG/OP communication - PG/OP communication - FS/OP communication - FS/OP cycle - PG/OP communication - FS/OP cycle - PS/OP cycle - PS/OP cycle - Number of IO Controllers with shared device, max activation/deactivation of I-devices - FS/OP cycle - FS/OP	<ul> <li>With IRT and parameterization of "odd" send cycles</li> </ul>	Update time = set "odd" send clock (any multiple of 125 $\mu$ s: 375 $\mu$ s, 625 $\mu$ s 3
- for send cycle of 250 µs - for send cycle of 500 µs - for send cycle of 500 µs - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 2 ms - for send cycle of 3 ms - for send cycle of 4 ms - for send cycle of 5 ms - for send cycl	Undate time for RT	δ/ο μs)
- for send cycle of 500 μs - for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 2 ms - for send cycle of 4 ms - for send cycle of 2 ms - PROFINET IO Device  Services - PG/OP communication - Yes - Isochronous mode - No - IRT - Yes - PROFlenergy - Yes; per user program - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Yes; per user program - Asset management record - Yes; per user program - Asset management record - Yes; per user program - Interface - Interface - Number of ports - Interface types - Number of ports - Number of ports - Truck of 1 ms - 1 ms to 512 ms - 2 ms - 4 ms to 512 ms - For condition -	·	250 us to 128 ms
- for send cycle of 1 ms - for send cycle of 2 ms - for send cycle of 4 ms 2 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms  PROFINET IO Device  Services  - PG/OP communication - Isochronous mode - IRT - PROFIenergy - Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record  PRS 485 Number of ports - Number of ports - Ves; Via CM DP module - Ves; Via CM DP module - Number of ports - Number of ports - Number of ports		
for send cycle of 2 ms for send cycle of 4 ms for send cycle of 4 ms for send cycle of 4 ms  PROFINET IO Device  Services  PG/OP communication Isochronous mode IRT PROFlenergy Shared device Number of IO Controllers with shared device, max activation/deactivation of I-devices Asset management record  Interface  Interface types RS 485 Number of ports Number of ports Number of ports RS Ves; Via CM DP module Number of ports Number of ports RS ves; Via CM DP module Number of ports PG/OP communication A ms to 512 ms A ms to 512 ms A ms to 512 ms Ves		
— for send cycle of 4 ms  PROFINET IO Device  Services  — PG/OP communication Yes — Isochronous mode No — IRT Yes — PROFlenergy Yes; per user program — Shared device Yes; per user program — Shared device Yes; per user program — activation/deactivation of I-devices Yes; per user program — Asset management record Yes; per user program  2. Interface types  • RS 485 • Number of ports  • Number of ports  1  Protocols	•	
PROFINET IO Device  Services  - PG/OP communication Yes - Isochronous mode No - IRT Yes - PROFlenergy Yes; per user program - Shared device Yes - Number of IO Controllers with shared device, max activation/deactivation of I-devices Yes; per user program - Asset management record Yes; per user program  2. Interface  Interface types  • RS 485 • Number of ports  1  Protocols	•	
Services  - PG/OP communication Yes - Isochronous mode No - IRT Yes - PROFlenergy Yes; per user program - Shared device Yes - Number of IO Controllers with shared device, max activation/deactivation of I-devices Yes; per user program - Asset management record Yes; per user program 2. Interface Interface types  • RS 485 Yes; Via CM DP module • Number of ports 1  Protocols	·	4 III3 to 312 III3
- PG/OP communication Yes - Isochronous mode No - IRT Yes - PROFlenergy Yes; per user program - Shared device Yes - Number of IO Controllers with shared device, max activation/deactivation of I-devices Yes; per user program - Asset management record Yes; per user program 2. Interface Interface types • RS 485 • Number of ports  • Number of ports  1 Protocols		
- Isochronous mode No - IRT Yes - PROFlenergy Yes; per user program - Shared device Yes - Number of IO Controllers with shared device, max. 4 - activation/deactivation of I-devices Yes; per user program - Asset management record Yes; per user program  2. Interface Interface types • RS 485 • Number of ports  • Number of ports  1  Protocols		Yes
<ul> <li>— IRT</li> <li>— PROFlenergy</li> <li>— Shared device</li> <li>— Number of IO Controllers with shared device, max.</li> <li>— activation/deactivation of I-devices</li> <li>— Asset management record</li> <li>✓ Yes; per user program</li> <li>✓ Protocols</li> </ul> Protocools Yes; Via CM DP module <ul> <li>Number of ports</li> <li>Protocools</li> </ul>		
- PROFlenergy Yes; per user program - Shared device Yes - Number of IO Controllers with shared device, max activation/deactivation of I-devices Yes; per user program - Asset management record Yes; per user program  2. Interface Interface types  • RS 485 • Number of ports  • Number of ports  1  Protocols		
- Shared device - Number of IO Controllers with shared device, max activation/deactivation of I-devices - Asset management record  2. Interface Interface types  • RS 485 • Number of ports  • Number of ports  Protocols		
<ul> <li>Number of IO Controllers with shared device, max.</li> <li>— activation/deactivation of I-devices</li> <li>— Asset management record</li> <li>Number of ports</li> <li>Protocols</li> </ul> 4 Yes; per user program Yes; per user program Yes; via CM DP module 1 Protocols		
<ul> <li>— activation/deactivation of I-devices</li></ul>		
— Asset management record  2. Interface  Interface types      RS 485  Number of ports  Protocols  Yes; per user program  Yes; Via CM DP module  1		
2. Interface Interface types  • RS 485  • Number of ports  Protocols  2. Interface  Yes; Via CM DP module  1		
Interface types  • RS 485  • Number of ports  Protocols  Yes; Via CM DP module  1	-	1 65, por user program
RS 485     Number of ports  Protocols  Yes; Via CM DP module  1  Protocols		
Number of ports 1 Protocols	•	Vas: Via CM DP modula
Protocols		
	· · · · · · · · · · · · · · · · · · ·	
▼ FNOFIDUS DE ITIASIEI YES		Von
PROFIBUS DP device     Yes		
SIMATIC communication  Yes		Yes
PROFIBUS DP master  40: Of which 4 and because of a FO and UMI		40. Of which 4 and account ( 50 11111
Number of connections, max.  48; Of which 4 each reserved for ES and HMI  485. In the latest the second of th		
<ul> <li>max. number of DP devices</li> <li>125; In total, up to 512 distributed I/O devices can be connected via AS-i,</li> <li>PROFIBUS or PROFINET</li> </ul>	<ul> <li>max. number of DP devices</li> </ul>	

Services	
<ul><li>— PG/OP communication</li></ul>	Yes
— Equidistance	No
<ul> <li>Isochronous mode</li> </ul>	No
<ul> <li>activation/deactivation of DP devices</li> </ul>	Yes
Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
Autonegotiation	Yes
Autocrossing	Yes
Industrial Ethernet status LED	Yes
RS 485	
Transmission rate, max.	12 Mbit/s
Protocols	12 Moto
PROFIsafe	No
Number of connections	NO
	120: via integrated interfaces of the CDLL and connected CDs / CMs
<ul> <li>Number of connections, max.</li> <li>Number of connections reserved for ES/HMI/web</li> </ul>	128; via integrated interfaces of the CPU and connected CPs / CMs
	10
Number of connections via integrated interfaces     Number of connections per CR/CM	88
Number of C7 souting paths	32
Number of S7 routing paths	16
Redundancy mode	Ver
H-Sync forwarding	Yes
Media redundancy	
— Media redundancy	Yes; only via BusAdapter
— MRP	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client
<ul> <li>MRP interconnection, supported</li> </ul>	Yes; as MRP ring node according to IEC 62439-2 Edition 3.0
— MRPD	Yes; Requirement: IRT
Switchover time on line break, typ.	200 ms; For MRP, bumpless for MRPD
Number of stations in the ring, max.	50
SIMATIC communication	30
PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
• S7 routing	Yes
Data record routing	
S .	Yes
S7 communication, as server     S7 communication, as server	Yes
S7 communication, as client	Yes
User data per job, max.	See online help (S7 communication, user data size)
Open IE communication	V
• TCP/IP	Yes
— Data length, max.	64 kbyte
— several passive connections per port, supported	Yes
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	64 kbyte
• UDP	Yes
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; Max. 5 multicast circuits
• DHCP	Yes
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Encryption	Yes; Optional
Web server	
• HTTP	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages
OPC UA	
Runtime license required	Yes; "Small" license required
OPC UA Client	Yes
<ul> <li>Application authentication</li> </ul>	Yes
<ul><li>Security policies</li></ul>	Available security policies: None, Basic128Rsa15, Basic256Rsa15,
OPC UA  Runtime license required  OPC UA Client  Application authentication	Yes; "Small" license required Yes Yes

	Basic256Sha256
— User authentication	"anonymous" or by user name & password
— Number of connections, max.	4
<ul> <li>Number of nodes of the client interfaces, recommended max.</li> </ul>	1 000
<ul> <li>Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_I max.</li> </ul>	300
<ul> <li>Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.</li> </ul>	20
<ul> <li>Number of elements for one call of OPC_UA_MethodGetHandleList, max.</li> </ul>	100
<ul> <li>Number of simultaneous calls of the client instructions for session management, per connection, max.</li> </ul>	1
<ul> <li>Number of simultaneous calls of the client instructions for data access, per connection, max.</li> </ul>	5
<ul> <li>Number of registerable nodes, max.</li> </ul>	5 000
<ul> <li>Number of registerable method calls of OPC_UA_MethodCall, max.</li> </ul>	100
<ul> <li>Number of inputs/outputs when calling OPC_UA_MethodCall, max.</li> </ul>	20
OPC UA Server	Yes; Data access (read, write, subscribe), method call, custom address space
<ul> <li>Application authentication</li> </ul>	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
<ul><li>— GDS support (certificate management)</li></ul>	Yes
— Number of sessions, max.	32
<ul> <li>Number of accessible variables, max.</li> </ul>	50 000
<ul> <li>Number of registerable nodes, max.</li> </ul>	10 000
<ul> <li>Number of subscriptions per session, max.</li> </ul>	20
— Sampling interval, min.	100 ms
— Publishing interval, min.	500 ms
Number of server methods, max.	20
Number of inputs/outputs per server method, max.	20
<ul><li>— Number of monitored items, recommended max.</li><li>— Number of server interfaces, max.</li></ul>	1 000; for 1 s sampling interval and 1 s send interval  10 of each "Server interfaces" / "Companion specification" type and 20 of the type "Reference namespace"
<ul> <li>Number of nodes for user-defined server interfaces, max.</li> </ul>	1 000
Alarms and Conditions	Yes
Number of program alarms	100
Number of alarms for system diagnostics	50
Further protocols	
MODBUS	Yes; MODBUS TCP
S7 message functions	
Number of login stations for message functions, max.	32
Program alarms	Yes
Number of configurable program messages, max.	5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Number of loadable program messages in RUN, max.	2 500
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 5 engineering systems
Status block	Yes; Up to 8 simultaneously (in total across all ES clients)
Single step	No
Number of breakpoints	8
Status/control	
Status/control variable	Yes
• Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Number of variables, max.	
— of which status variables, max.	200; per job
— of which control variables, max.	200; per job
Forcing	Vac
Forcing	Yes

E	B : 1 1: 1/1 1
Forcing, variables	Peripheral inputs/outputs
Number of variables, max.	200
Diagnostic buffer	
• present	Yes
Number of entries, max.	1 000
— of which powerfail-proof	500
Traces	
Number of configurable Traces	4; Up to 512 KB of data per trace are possible
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
<ul> <li>Monitoring of the supply voltage (PWR-LED)</li> </ul>	Yes
Connection display LINK TX/RX	Yes
Supported technology objects	
Motion Control	Yes; Note: The number of technology objects affects the cycle time of the PLC
	program; selection guide via the TIA Selection Tool
<ul> <li>Number of available Motion Control resources for technology objects</li> </ul>	800
Required Motion Control resources	
required Motion Control resources  - per speed-controlled axis	40
	80
— per positioning axis	160
— per synchronous axis	
— per external encoder	80
— per output cam	20
— per cam track	160
— per probe	40
Positioning axis	
<ul> <li>Number of positioning axes at motion control cycle of 4 ms (typical value)</li> </ul>	5
Number of positioning axes at motion control cycle	10
of 8 ms (typical value)	
Controller	
<ul> <li>PID_Compact</li> </ul>	Yes; Universal PID controller with integrated optimization
PID_3Step	Yes; PID controller with integrated optimization for valves
PID-Temp	Yes; PID controller with integrated optimization for temperature
Counting and measuring	
High-speed counter	Yes
Ambient conditions	
Ambient temperature during operation	
horizontal installation, min.	-40 °C; = Tmin (incl. condensation/frost)
<ul> <li>horizontal installation, max.</li> </ul>	60 °C; = Tmax
vertical installation, min.	-40 °C; = Tmin
vertical installation, max.	50 °C; = Tmax
Altitude during operation relating to sea level	
Installation altitude above sea level, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	
With condensation, tested in accordance with IEC 60068- 2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance	
Coolants and lubricants	
Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
Use in stationary industrial systems	
<ul> <li>to biologically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
<ul> <li>to chemically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
<ul> <li>to mechanically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3S4 incl. sand, dust, *
<ul> <li>Against mechanical environmental conditions acc. to EN 60721-3-3</li> </ul>	Yes; Class 3M8 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0)
Use on land craft, rail vehicles and special-purpose vehicles	

<ul> <li>Against mechanical environmental conditions acc. to EN 60721-3-5</li> </ul>	Yes; Class 5M2 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0)
<ul> <li>against mechanical environmental conditions in agriculture acc. to ISO 15003</li> </ul>	Yes; level 1 (Location LE) using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0)
Use on ships/at sea	
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold, fungal and dry rot spores (excluding fauna)
<ul> <li>to chemically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
<ul> <li>to mechanically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6S3 incl. sand, dust; *
<ul> <li>— Against mechanical environmental conditions acc. to EN 60721-3-6</li> </ul>	Yes; Class 6M4 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0)
Usage in industrial process technology	·
<ul> <li>Against chemically active substances acc. to EN 60654-4</li> </ul>	Yes; Class 3 (excluding trichlorethylene)
<ul> <li>Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04</li> </ul>	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
<ul> <li>Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04</li> </ul>	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
Coatings for printed circuit board assemblies acc. to EN 61086	Yes; Class 2 for high reliability
<ul> <li>Protection against fouling acc. to EN 60664-3</li> </ul>	Yes; Type 1 protection
<ul> <li>Military testing according to MIL-I-46058C, Amendment 7</li> </ul>	Yes; Discoloration of coating possible during service life
<ul> <li>Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC- CC-830A</li> </ul>	Yes; Conformal coating, Class A
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
500	
— FBD	Yes
— STL	Yes Yes
— STL	Yes
— STL — SCL	Yes Yes
— STL — SCL — GRAPH	Yes Yes
— STL — SCL — GRAPH Know-how protection	Yes Yes Yes
— STL — SCL — GRAPH  Know-how protection  • User program protection/password protection	Yes Yes Yes
— STL — SCL — GRAPH  Know-how protection  • User program protection/password protection • Copy protection	Yes Yes Yes Yes Yes
- STL - SCL - GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection	Yes Yes Yes Yes Yes
- STL - SCL - GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection	Yes Yes Yes Yes Yes Yes Yes
— STL — SCL — GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection  Access protection  • protection of confidential configuration data	Yes Yes Yes Yes Yes Yes Yes Yes
- STL - SCL - GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection  Access protection  • protection of confidential configuration data • Protection level: Write protection	Yes Yes Yes Yes Yes Yes Yes Yes Yes
- STL - SCL - GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • protection of confidential configuration data  • Protection level: Write protection  • Protection level: Read/write protection	Yes
- STL - SCL - GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • protection of confidential configuration data  • Protection level: Write protection  • Protection level: Read/write protection  • Protection level: Complete protection	Yes
- STL - SCL - GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • protection of confidential configuration data  • Protection level: Write protection  • Protection level: Read/write protection  • Protection level: Complete protection  programming / cycle time monitoring / header	Yes
— STL — SCL — GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection  Access protection  • protection of confidential configuration data • Protection level: Write protection  • Protection level: Read/write protection • Protection level: Complete protection  programming / cycle time monitoring / header • lower limit	Yes
- STL - SCL - GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection  Access protection  • protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection  programming / cycle time monitoring / header • lower limit • upper limit	Yes
- STL - SCL - GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • protection of confidential configuration data  • Protection level: Write protection  • Protection level: Read/write protection  • Protection level: Complete protection  programming / cycle time monitoring / header  • lower limit  • upper limit  Dimensions	Yes
- STL - SCL - GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • protection of confidential configuration data  • Protection level: Write protection  • Protection level: Read/write protection  • Protection level: Complete protection  programming / cycle time monitoring / header  • lower limit  • upper limit  Dimensions  Width	Yes
- STL - SCL - GRAPH  Know-how protection  • User program protection/password protection  • Copy protection  • Block protection  Access protection  • protection of confidential configuration data  • Protection level: Write protection  • Protection level: Read/write protection  • Protection level: Complete protection  programming / cycle time monitoring / header  • lower limit  • upper limit  Dimensions  Width  Height	Yes
STL SCL GRAPH  Know-how protection  • User program protection/password protection • Copy protection • Block protection  Access protection  • protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection  programming / cycle time monitoring / header • lower limit • upper limit  Dimensions  Width  Height  Depth	Yes