## **SIEMENS**

## **Data sheet**



SIPLUS ET 200SP CPU 1515SP PC2 rail based on 6ES7677-2DB42-0GB0 with conformal coating, -40...+60 °C, OT2 with ST1/2 (+70 °C für 10 minutes), 8 GB RAM, 30 GB CFast with Windows 10 IoT Enterprise 64-bit and S7-1500 SoftwareController CPU 1505SP preinstalled, interfaces: 1x slot CFast, 1x slot SD/MMC, 1x connection for ET 200SP BusAdapter PROFINET, 1x 10/100/1000 Mbps Ethernet 2x USB 3.0; 2x USB 2.0, 1x DisplayPort,

Figure similar

r igure sinina	
General information	
Product type designation	CPU 1515SP PC2
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	see entry ID: 109746275
Installed software	
<ul> <li>Visualization</li> </ul>	No
Control	S7-1500 Software Controller CPU 1505SP
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	
<ul> <li>Mains/voltage failure stored energy time</li> </ul>	5 ms
Input current	
Current consumption (rated value)	1.8 A; Full processor load, incl. ET 200SP modules and using USB
Current consumption (in no-load operation), typ.	0.5 A
Current consumption, max.	2.9 A
l²t	0.426 A <sup>2</sup> ·s; with starting current inrush
Power	
Active power input, max.	43 W; incl. ET 200SP modules and using USB
Infeed power to the backplane bus	8.75 W
Power loss	
Power loss, typ.	16 W
Processor	
Processor type	Intel Atom E3940, 1.6 GHz, 4 cores
Memory	
Type of memory	DDR3L
Main memory	8 GB RAM
CFast memory card	Yes; 128 GB flash memory
SIMATIC memory card required	No
Work memory	
• integrated (for program)	1 Mbyte
<ul><li>integrated (for data)</li></ul>	5 Mbyte
<ul> <li>integrated (for CPU function library of CPU Runtime)</li> </ul>	20 Mbyte

Load momony	
Load memory  ● integrated (on PC mass storage)	320 Mbyte
Backup	320 Mbyte
·	Voc. all memory arous declared retenting
• with UPS	Yes; all memory areas declared retentive
with non-volatile memory	Yes
CPU processing times	
for bit operations, typ.	10 ns
for word operations, typ.	12 ns
for fixed point arithmetic, typ.	16 ns
for floating point arithmetic, typ.	64 ns
CPU-blocks	
Number of elements (total)	6 000; In addition to blocks such as DBs, FBs and FCs, UDTs, global
DD	constants, etc. are also regarded as elements
DB	E 000 N
Number, max.	5 999; Number range: 1 to 65535
• Size, max.	5 Mbyte
FB	
Number, max.	5 998; Number range: 1 to 65535
• Size, max.	1 024 kbyte
FC	
<ul><li>Number, max.</li></ul>	5 999; Number range: 1 to 65535
• Size, max.	1 024 kbyte
OB	
• Size, max.	1 024 kbyte
<ul> <li>Number of free cycle OBs</li> </ul>	100
<ul> <li>Number of time alarm OBs</li> </ul>	20
<ul> <li>Number of delay alarm OBs</li> </ul>	20
Number of cyclic interrupt OBs	20
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 startup OBs     Number of asynchronous error OBs	4
Number of synchronous error OBs	2
•	
Number of diagnostic alarm OBs	1
Nesting depth	
per priority class	24
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
S7 times	
• Number	2 048
Retentivity	
— adjustable	Yes
IEC timer	
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	410 kbyte; For storage in NVRAM; for storage in mass storage 5 242 020 bytes
Flag	1.3 hayte, 1 or storage in 1991 and, for storage in mass storage 3 242 020 bytes
• Size, max.	16 kbyte
Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte
	o, o clock memory bit, grouped into one clock memory byte
Data blocks	

a Detentivity adjustable	Voo
Retentivity adjustable	Yes
Retentivity preset	No
Local data	401/2
per priority class, max.	64 kbyte; max. 16 KB per block
Address area	
Number of IO modules	8 192
I/O address area	
• Inputs	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
Subprocess images	
Number of subprocess images, max.	32
Hardware configuration	
Integrated power supply	Yes
Number of distributed IO systems	20
Number of DP masters	
• Via CM	1
Number of IO Controllers	
via PC interfaces	1
Rack	
Modules per rack, max.	64; CPU 1515SP PC + 64 modules + server module
Number of lines, max.	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
Hardware clock (real-time)	Yes; Resolution: 1 s
Backup time	6 wk; At 40 °C ambient temperature, typically
Deviation per day, max.	10 s; Typ.: 2 s
Clock synchronization	······································
• supported	Yes
• to DP, master	Yes
• on Ethernet via NTP	Yes
• on Windows clock, slave	Yes
Interfaces	Tes
Number of industrial Ethernet interfaces	2
Number of PROFINET interfaces	1
Number of PROFIBUS interfaces	1; Via CM DP module
Number of RS 485 interfaces	1; Via CM DP module
Number of USB interfaces	4; 2x USB 2.0, 2x USB 3.0 on front side
Number of SD card slots	1
Video interfaces	
Graphics interface	1x DisplayPort
1. Interface	
Interface type	PROFINET
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Number of connections	88
Interface types	
RJ 45 (Ethernet)	Yes; Via BusAdapter BA 2x RJ45
— Transmission rate, max.	100 Mbit/s
Industrial Ethernet status LED	Yes
Number of ports	2
• integrated switch	Yes
BusAdapter (PROFINET)	Yes; Compatible BusAdapter: BA 2x RJ45, BA 2x FC, BA 2x SCRJ (from FS03,
• BusAdapter (PROFINET)	V2.2), BA SCRJ / RJ45 (from FS03, V3.1), BA SCRJ / FC (from FS03, V3.1), BA 2x LC (from FS03, V3.3), BA LC / RJ45 (from FS03, V3.3), BA LC / RJ45 (from FS03, V3.3), BA LC / FC (from FS03, V3.3)
Protocols	(
PROFINET IO Controller	Yes
- I IVOI IIIE I 10 OOIIII OIICI	100

SIMATIC communication  Open IE communication  Wes  PROFINET IO Controllet  Services	Yes
Open IE communication  * Web Server  * PROFINET ID Controller  Services	
■ Ves  PROFINET IO Controller  Services  — Isochronous mode — shorets dock pulse — shorets dock pulse — shorets dock pulse — PROFilemeny — PROFilemeny — PROFilemeny — PROFilemeny — PROFilemeny — Prioritized startup  — Number of connectable IO Devices, max. — Number of connectable IO Devices, max. — Number of connectable IO Devices, max. — Of which In line, max. — of which In line, max. — of which In line, 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. — IO Devices changing during operation (partner potts), supported — Number of IO Devices for RT, max. — IO Devices of the sping during operation (partner potts), supported — Number of IO Devices per tool, max. — Updating times — To send cycle of \$600 µs — for send cycle of \$600 µs — for send cycle of \$600 µs — for send cycle of 4 ms — with IRT and parameterization of "odd" send cycles — For send cycle of 4 ms — with IRT and parameterization of "odd" send cycles — 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 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 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 send cycle of 500 µs — interface to cycle of 500 µs — Number of IO Controllers with shared device, max. — Autonoosing Interface bypes  • IA 1 of Elbernet) — Transmission rate  • Ves: Integrated	
PROPINET IO Controller   Services	
Services	165
Isochronous mode	
- shortest clock pulse - IRT - PROFlenergy - PROFlenergy - PROFlenergy - Proritized startup - Proritized startup - Proritized startup - Proritized 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 Of which in Ine, max IO Devices that can be simultaneously activated/descrivated, max IO Devices that can be simultaneously activated/descrivated, max IO Devices than to an object of IO Devices per tool, max IVD Devices than to an object of IVD Devices per tool, max Updating times - For send cycle of 1500 µs - For send cycle of 1500	Yes
- IRT	
PROFlenergy Prioritized startup  Number of connectable IO Devices, max.  128 Of which IO devices with IRT, max. 64 Number of connectable IO Devices for RT, max. Of which in line, max. 128 Number of connectable IO Devices for RT, max. Of which in line, max. 128 Number of IO Devices that can be simultaneously activated/deactivated, max. IO Devices changing during operation (partner ports), supported Number of IO Devices per tool, max.  Updating times Prior send cycle of 500 µs For send cycle of 500 µs For send cycle of 1 ms With IRT and parameterization of "odd" send cycles Pwith IRT and parameterization of "odd" send cycles Pwith IRT and parameterization of "odd" send cycles Prior send cycle of 1 ms With IRT and parameterization of "odd" send cycles Prior send cycle of 1 ms For send cycle of 1 ms With IRT and parameterization of "odd" send cycles Prior send cycle of 1 ms For send cy	
- Prioritized startup  - Ves. max. 32 PROFINET for diveces, if you want to use the "Prioritized startup"  - Number of connectable IO Devices, max.  - Of which IO devices with IRT, max.  - Of which IO devices with IRT, max.  - Of which II line, max.  - Of bevices that can be simultaneously activated/deadvaried, max.  - IO Devices changing during operation (partner ports), supported  - Number of IO Devices per tool, max.  - Updating times  - Update time for IRT  - Or 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  - Vital IRT and parameterization of "odd" send cycles  - Update time for RT  - Or 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  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "odd" send cycles  - Vital IRT and parameterization of "od	
unctionality in STEP 7 for the PROFINET interface of the CPU, the CPU the device must be separated by means of a switch (e.g. SCALANCE X  Of which I/O devices with IRT, max.  Of which I/O levices with IRT, max.  Number of connectable I/O Devices for RT, max.  Of which in line, max.  Number of I/O Devices that can be simultaneously activated/deactivated, max.  I/O Devices changing during operation (partner ports), supported  Number of I/O Devices per tool, max.  Update time for IRT  Or 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  Update time for RT  Update time for RT  Or send cycle of 500 µs  For send cycle of 500 µs  With IRT and parameterization of "odd" send cycles  Update time for RT  For send cycle of 1 ms  For send cycle of 1 m	
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Number of IO Devices that can be simultaneously activated/deactivated, max.	vices for RT, max. 128
activated/deactivated, max.  — IO Devices changing during operation (partner ports), supported  — Number of IO Devices per tool, max.  8  — Updating times  Story PROFINET IO, on the number of IO devices, and on the quantity configured user data  Update time for IRT  — 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 — With IRT and parameterization of "odd" send cycless  Update time for RT  — for send cycle of 500 µs — for send cycle of 4 ms — with IRT and parameterization of "odd" send cycless  Update time = set "odd" send clock (any multiple of 125 µs: 375 µs, 625 875 µs)  Update time for RT  — for send cycle of 500 µs — for send cycle of 4 ms — in the set of the s	128
ports), supported  - Number of IO Devices per tool, max.  - Updating times  The minimum value of the update time also depends on communication set for PROFINET IO, on the number of IO devices, and on the quantity configured user data  Update time for IRT  - 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  Update time for RT  - 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 2 ms - for send cycle of 4 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 - 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 - lims to 512 ms - for send cycle of 500 µs - for send cycle of 500 µs - send cycle of 500 µs - lims to 512 ms - send cycle of 500 µs - lims to 512 ms - send cycle of 500 µs - lims to 512 ms - send cycle of 500 µs - lims to 512 ms - send cycle of 500 µs - lims to 512 ms - send cycle of 500 µs - lims to 512 ms - send cycle of 500 µs - lims to 512 ms - send cycle of 500 µs - lims to 512 ms - send cycle of 500 µs - lims to 512 ms - send cycle of 500 µs - lims to 512 ms - send cycle of 500 µs - lims to 512 ms - send cycle of 500 µs - lims to 512 ms - send cycle of 500 µs - lims to 512 ms - send cycle of 500 µs - lims to 512 ms - send cycle of 500 µs - send cycle	n be simultaneously 8
- Updating times  The minimum value of the update time also depends on communication set for PROFIDET IO, on the number of IO devices, and on the quantity configured user data  Update time for IRT  — for send cycle of 500 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  Update time for RT — for send cycle of 500 μs — for send cycle of 1 ms — with IRT and parameterization of "odd" send cycles  Update time for RT — 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 4 ms — 1 ms to 512 ms — for send cycle of 4 ms — 4 ms to 512 ms  Address area — Inputs, max. — 8 kbyte  PROFINET IO Device  Services — Isochronous mode — shortest clock pulse — Shared device — PROFIenergy — Prioritized startup — Yes — PROFIenergy — Prioritized startup — Yes — Number of IO Controllers with shared device, max. — Asset management record  Ves  2 Interface  Interface  Interface type  Interface type  Autocrossing  Interface types  • RJ 45 (Ethernet) — Transmission rate, max.  1 000 Mbit/s	
Update time for IRT  — for send cycle of 500 µs — for send cycle of 2 ms — for send cycle of 4 ms — for send cycle of 4 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, 625 875 µs)  Update time for RT — 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 4 ms — a to 512 ms — for send cycle of 4 ms — have to 512 ms — for send cycle of 4 ms — limputs, max. — Outputs, max. — Outputs, max. — Outputs, max. — 8 kbyte  PROFINET IO Device  Services — Isochronous mode — shortest clock pulse — IRT — PROFlenergy — Prioritized startup — Shared device — Number of IO Controllers with shared device, max. — Asset management record  Integrated Ethernet interface  automatic detection of transmission rate  Autoregotiation — Yes  Autorcossing  • RJ 45 (Ethemet) — Transmission rate, max.  1 000 Mbit/s	
- 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 - 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 - 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 500 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 500 μs - For send cycle of 500 μ	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
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- 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 500 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 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 sen	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 = set "odd" send clock (any multiple of 125 μs: 375 μs, 625 ### 875 μs)  Update time for RT - 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 - Cutputs, max Outputs, max Outputs, max Outputs, max Sk byte  #### PROFINET IO Device  Services  - Isochronous mode - shortest clock pulse - IRT - PROFIenergy - Prioritized startup - Shared device - Number of IO Controllers with shared device, max Asset management record - Asset management record - Yes  #### Integrated Ethernet interface  #### automatic detection of transmission rate - Autocrossing - FRI Yes - FRI Yes - FRI Yes - Autocrossing - Yes - FRI Yes - Started Ethernet interface - Autocrossing - FRI Yes - FRI	1 ms to 16 ms
Update time = set "odd" send clock (any multiple of 125 μs: 375 μs, 625 875 μs)  Update time for RT  — for send cycle of 500 μs — for send cycle of 1 ms — for send cycle of 2 ms — for send cycle of 4 ms — lnputs, max. — Outputs, max. — Outputs, max. — 8 kbyte  PROFINET IO Device  Services — Isochronous mode — shortest clock pulse — IRT — PROFlenergy — Prioritized startup — Shared device — Number of IO Controllers with shared device, max. — Asset management record  2. Interface  Interface type  Autonegotiation — KJ 45 (Ethernet) — Transmission rate, max.  1 000 Mbit/s	2 ms to 32 ms
Update time for RT  — 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 502 ms — law for send cycle of 4 ms — for send cycle of 512 ms	4 ms to 64 ms
- 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 500 μs - Inputs, max Outputs, max 8 kbyte  PROFINET IO Device  Services - Isochronous mode - shortest clock pulse - shortest clock pulse - shortest clock pulse - PROFlenergy - Prioritized startup - Prioritized startup - Shared device - Number of IO Controllers with shared device, max Asset management record  2. Interface Interface type - Integrated Ethernet interface automatic detection of transmission rate - Yes - Autocrossing - Yes Interface types - RJ 45 (Ethernet) - Transmission rate, max 1 000 Mbit/s	
— for send cycle of 1 ms — for send cycle of 2 ms — for send cycle of 4 ms — for send cycle of 2 ms — law send send send send send send send send	
- for send cycle of 2 ms - for send cycle of 4 ms 4 ms to 512 ms  Address area  - Inputs, max Outputs, max. 8 kbyte  PROFINET IO Device  Services  - Isochronous mode - shortest clock pulse - IRT - PROFlenergy - Prioritized startup - Prioritized startup - Shared device - Number of IO Controllers with shared device, max Asset management record  2. Interface Interface type  Autocrossing Interface types  • RJ 45 (Ethernet) - Transmission rate, max.  4 ms to 512 ms 4 ms to 512 m	500 µs to 256 ms
— for send cycle of 4 ms  Address area  — Inputs, max. — Outputs, max. 8 kbyte  PROFINET IO Device  Services  — Isochronous mode — shortest clock pulse — IRT — PROFlenergy — Prioritized startup — Prioritized startup — Shared device — Number of IO Controllers with shared device, max. — Asset management record  2. Interface Interface type  automatic detection of transmission rate  Autocrossing Interface types  • RJ 45 (Ethernet) — Transmission rate, max.  4 whyte  4 kbyte  8 kbyte  No  8 kbyte  No  8 kbyte  9 ks yes  1 Interface types  • RJ 45 (Ethernet) — Transmission rate, max.  1 000 Mbit/s	1 ms to 512 ms
Address area	2 ms to 512 ms
- Inputs, max Outputs, max Outputs, max Outputs, max Outputs, max.  PROFINET IO Device  Services  - Isochronous mode - shortest clock pulse - IRT - PROFlenergy - Prioritized startup - Prioritized startup - Shared device - Number of IO Controllers with shared device, max Asset management record  2. Interface Interface type automatic detection of transmission rate Autonegotiation - Yes  Autocrossing - RJ 45 (Ethernet) - Transmission rate, max.  8 kbyte 8 kbyte 8 kbyte  9 kbyte  1 Interface  Yes  4	4 ms to 512 ms
— Outputs, max. 8 kbyte  PROFINET IO Device  Services  — Isochronous mode No — shortest clock pulse 500 μs — IRT Yes — PROFlenergy Yes — Prioritized startup Yes — Shared device Yes — Number of IO Controllers with shared device, max. — Asset management record Yes  2. Interface  Interface type Integrated Ethernet interface automatic detection of transmission rate Yes  Autorossing Yes  Interface types  ● RJ 45 (Ethernet) — Transmission rate, max. 1 000 Mbit/s	
PROFINET IO Device  Services  — Isochronous mode — shortest clock pulse — IRT — Yes — PROFlenergy — Prioritized startup — Shared device — Number of IO Controllers with shared device, max. — Asset management record  2. Interface  Interface type automatic detection of transmission rate  Autorossing Interface types  • RJ 45 (Ethernet) — Transmission rate, max.  1000 Mbit/s	8 kbyte
Services  - Isochronous mode - shortest clock pulse - IRT - PROFlenergy - Prioritized startup - Prioritized startup - Shared device - Number of IO Controllers with shared device, max Asset management record  2. Interface Interface type automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) - Transmission rate, max.  No No Yes  500 µs Yes  Yes  Yes  Interface type Integrated Ethernet interface  Yes  Ves  Integrated Ethernet interface  Yes  Autocrossing Yes  Interface types  • RJ 45 (Ethernet) - Transmission rate, max.  1 000 Mbit/s	8 kbyte
- Isochronous mode - shortest clock pulse - IRT - Yes - PROFlenergy - Prioritized startup - Shared device - Number of IO Controllers with shared device, max Asset management record  2. Interface Interface type automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) - Transmission rate, max.  No 500 μs  Yes  Yes  Yes  Integrated Ethernet interface  Yes  Automatic detection of transmission rate Yes  Interface types • RJ 45 (Ethernet) - Transmission rate, max.  1 000 Mbit/s	
- shortest clock pulse - IRT - Yes - PROFlenergy - Prioritized startup - Shared device - Number of IO Controllers with shared device, max Asset management record  2. Interface Interface type automatic detection of transmission rate Autonegotiation Autocrossing Interface types Interface types  • RJ 45 (Ethernet) - Transmission rate, max.  Yes  500 µs Yes  Yes  Yes  Interface Yes  Integrated Ethernet interface Yes  Yes  Interface types  • RJ 45 (Ethernet) - Transmission rate, max.  1 000 Mbit/s	
- IRT - PROFlenergy - Prioritized startup - Shared device - Shared device - Number of IO Controllers with shared device, max Asset management record  2. Interface Interface type Interface type automatic detection of transmission rate Autonegotiation Autocrossing Interface types Interface types  • RJ 45 (Ethernet) - Transmission rate, max.  Yes  Yes  Yes  Yes; Integrated  1 000 Mbit/s	No
— IRT — PROFlenergy — Prioritized startup — Shared device — Number of IO Controllers with shared device, max. — Asset management record  2. Interface Interface type Interface type automatic detection of transmission rate  Autorogotiation Autocrossing Interface types  • RJ 45 (Ethernet) — Transmission rate, max.  Yes  Yes  Yes  Integrated Ethernet interface  Yes  Yes  Interface types  • RJ 45 (Ethernet) — Transmission rate, max.  1 000 Mbit/s	500 μs
- Prioritized startup - Shared device - Number of IO Controllers with shared device, max Asset management record  2. Interface Interface type automatic detection of transmission rate Autoregotiation Autocrossing Interface types  • RJ 45 (Ethernet) - Transmission rate, max.  Yes  Yes  Yes  Yes  Yes  Yes  Integrated Ethernet interface  Yes  Yes  Automagotiation Yes  Integrated types  • RJ 45 (Ethernet) - Transmission rate, max.	
- Prioritized startup - Shared device - Number of IO Controllers with shared device, max Asset management record  2. Interface Interface type automatic detection of transmission rate Autoregotiation Autocrossing Interface types  • RJ 45 (Ethernet) - Transmission rate, max.  Yes  Yes  Yes  Yes  Yes  Yes  Integrated Ethernet interface  Yes  Yes  Automagotiation Yes  Integrated types  • RJ 45 (Ethernet) - Transmission rate, max.	Yes
- Shared device - Number of IO Controllers with shared device, max Asset management record  2. Interface Interface type Interface type automatic detection of transmission rate  Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) - Transmission rate, max.  Yes  Yes  Yes  Yes  Integrated Ethernet interface  Yes  Yes  Integrated Ethernet interface  Yes  Yes  Integrated  Yes  Integrated  Yes  Integrated  Yes; Integrated	Yes
— Number of IO Controllers with shared device, max.  — Asset management record  2. Interface  Interface type Interface type automatic detection of transmission rate  Autonegotiation  Autocrossing Yes  Interface types  • RJ 45 (Ethernet) — Transmission rate, max.  4 Yes  Integrated Ethernet interface Yes  Yes  Yes  Integrated Ethernet interface Yes  Yes  Integrated Ethernet interface Yes  Yes  Integrated Ethernet interface Yes  Autocrossing Yes  Integrated Integrated Yes; Integrated Integrat	
— Asset management record  2. Interface  Interface type Integrated Ethernet interface automatic detection of transmission rate  Autonegotiation Yes  Autocrossing Yes  Interface types  • RJ 45 (Ethernet) — Transmission rate, max.  Yes  1 000 Mbit/s	
2. Interface Interface type Integrated Ethernet interface automatic detection of transmission rate Yes Autonegotiation Yes Autocrossing Yes Interface types  • RJ 45 (Ethernet) Yes; Integrated — Transmission rate, max. 1 000 Mbit/s	
Interface type automatic detection of transmission rate  Autonegotiation  Autocrossing  Interface types  • RJ 45 (Ethernet) — Transmission rate, max.  Integrated Ethernet interface  Yes  Yes  Yes  Yes  Integrated  Yes  Yes  Integrated  Yes; Integrated	
automatic detection of transmission rate  Autonegotiation  Autocrossing  Yes  Interface types  • RJ 45 (Ethernet)  — Transmission rate, max.  Yes  Yes  Yes  Yes  1 000 Mbit/s	Integrated Ethernet interface
Autonegotiation  Autocrossing  Interface types  RJ 45 (Ethernet)  — Transmission rate, max.  Yes  Yes  Yes  1 000 Mbit/s	
Autocrossing  Interface types  • RJ 45 (Ethernet)  — Transmission rate, max.  Yes  Yes  1 000 Mbit/s	
Interface types  • RJ 45 (Ethernet)  — Transmission rate, max.  Yes; Integrated  1 000 Mbit/s	
• RJ 45 (Ethernet)  — Transmission rate, max.  Yes; Integrated 1 000 Mbit/s	
— Transmission rate, max. 1 000 Mbit/s	Yes: Integrated
Industrial Ethernet status LED     No	
Number of ports	
3. Interface	
Interface type PROFIBUS with CM DP	DDOEIDII C WALL OM DD

Number of connections	44
Interface types	
• RS 485	Yes
Protocols	
<ul> <li>PROFIBUS DP master</li> </ul>	Yes
<ul> <li>PROFIBUS DP slave</li> </ul>	Yes
SIMATIC communication	Yes
PROFIBUS DP master	
Number of DP slaves, max.	125
Services	
— Equidistance	No
— Isochronous mode	No
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
Interface types	
RS 485	
	12 Mbit/s
Transmission rate, max.  Protocols	12 IVIDIUS
	No
PROFIsafe	No
Number of connections	
<ul> <li>Number of connections, max.</li> </ul>	88
<ul> <li>Number of connections reserved for ES/HMI/web</li> </ul>	10
Number of S7 routing paths	16
Redundancy mode	
Media redundancy	
— MRP	Yes
— MRPD	Yes
<ul> <li>Switchover time on line break, typ.</li> </ul>	200 ms
<ul> <li>Number of stations in the ring, max.</li> </ul>	50
SIMATIC communication	
<ul> <li>PG/OP communication</li> </ul>	Yes
<ul> <li>S7 routing</li> </ul>	Yes
<ul> <li>S7 communication, as server</li> </ul>	Yes
<ul> <li>S7 communication, as client</li> </ul>	Yes
• User data per job, max.	64 kbyte; BSEND/BRCV: 64 KB; PUT/GET: 960 bytes
Open IE communication	
• TCP/IP	Yes
— Data length, max.	64 kbyte
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	64 kbyte
• UDP	Yes
— Data length, max.	1 472 kbyte
• SNMP	Yes
• DCP	100
	Yes
ALIDP	Yes
LLDP  Web server	Yes Yes
Web server	Yes
Web server  ● HTTP	Yes; Via Windows and PROFINET interface
Web server  • HTTP  • HTTPS	Yes
Web server  • HTTP  • HTTPS  OPC UA	Yes; Via Windows and PROFINET interface Yes; Via Windows and PROFINET interface
Web server  • HTTP  • HTTPS  OPC UA  • Runtime license required	Yes; Via Windows and PROFINET interface Yes; Via Windows and PROFINET interface Yes; "Small" license required
Web server  • HTTP  • HTTPS  OPC UA  • Runtime license required  • OPC UA Client	Yes; Via Windows and PROFINET interface Yes; Via Windows and PROFINET interface Yes; "Small" license required Yes; From SW CPU 1505SP V2.6
Web server  • HTTP  • HTTPS  OPC UA  • Runtime license required  • OPC UA Client  • OPC UA Server	Yes; Via Windows and PROFINET interface Yes; Via Windows and PROFINET interface  Yes; "Small" license required Yes; From SW CPU 1505SP V2.6 Yes; Data access (read, write, subscribe), runtime license required
Web server  • HTTP  • HTTPS  OPC UA  • Runtime license required  • OPC UA Client  • OPC UA Server  — Application authentication	Yes; Via Windows and PROFINET interface Yes; Via Windows and PROFINET interface  Yes; "Small" license required Yes; From SW CPU 1505SP V2.6 Yes; Data access (read, write, subscribe), runtime license required Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
Web server  • HTTP  • HTTPS  OPC UA  • Runtime license required  • OPC UA Client  • OPC UA Server	Yes; Via Windows and PROFINET interface Yes; Via Windows and PROFINET interface  Yes; "Small" license required Yes; From SW CPU 1505SP V2.6 Yes; Data access (read, write, subscribe), runtime license required Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
Web server  • HTTP  • HTTPS  OPC UA  • Runtime license required  • OPC UA Client  • OPC UA Server  — Application authentication  — Security policies  — User authentication	Yes; Via Windows and PROFINET interface Yes; Via Windows and PROFINET interface  Yes; "Small" license required Yes; From SW CPU 1505SP V2.6 Yes; Data access (read, write, subscribe), runtime license required Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15,
Web server  • HTTP  • HTTPS  OPC UA  • Runtime license required  • OPC UA Client  • OPC UA Server  — Application authentication  — Security policies	Yes; Via Windows and PROFINET interface Yes; Via Windows and PROFINET interface  Yes; "Small" license required Yes; From SW CPU 1505SP V2.6 Yes; Data access (read, write, subscribe), runtime license required Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
Web server  • HTTP • HTTPS  OPC UA  • Runtime license required • OPC UA Client • OPC UA Server  — Application authentication  — Security policies  — User authentication	Yes; Via Windows and PROFINET interface Yes; Via Windows and PROFINET interface  Yes; "Small" license required Yes; From SW CPU 1505SP V2.6 Yes; Data access (read, write, subscribe), runtime license required Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256

Number of login stations for message functions, max.	32
Program alarms	Yes
Number of configurable program messages, max.	10 000
Number of simultaneously active program alarms	1 000
Number of program alarms	1 000
Number of alarms for system diagnostics	200
Number of alarms for motion technology objects	160
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 8 engineering systems
Status block	Yes; up to 8 simultaneously
Single step	No
Number of breakpoints	8
Status/control	
Status/control variable	Yes
<ul> <li>Variables</li> </ul>	Inputs, outputs, memory bits, DB, times, counters
<ul> <li>Number of variables, max.</li> </ul>	
— of which status variables, max.	200
<ul><li>of which control variables, max.</li></ul>	200
Forcing	
<ul><li>Forcing</li></ul>	Yes
<ul> <li>Forcing, variables</li> </ul>	Inputs, outputs
Number of variables, max.	200
Diagnostic buffer	
• present	Yes
<ul> <li>Number of entries, max.</li> </ul>	1 000
— of which powerfail-proof	300
Traces	
<ul> <li>Number of configurable Traces</li> </ul>	4
Memory size per trace, max.	512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
Supported technology objects	
Motion Control	Yes
Number of available Motion Control resources for technology objects      Descript Making Control resources	2 400
Required Motion Control resources	40
— per speed-controlled axis	40; per axis
— per positioning axis	80; per axis
<ul> <li>per synchronous axis</li> </ul>	
	160; per axis
— per external encoder	80; per external encoder
— per external encoder  — per output cam	80; per external encoder 20; per cam
<ul><li>per external encoder</li><li>per output cam</li><li>per cam track</li></ul>	80; per external encoder 20; per cam 160; per cam track
<ul><li>per external encoder</li><li>per output cam</li><li>per cam track</li><li>per probe</li></ul>	80; per external encoder 20; per cam
<ul> <li>per external encoder</li> <li>per output cam</li> <li>per cam track</li> <li>per probe</li> <li>Positioning axis</li> </ul>	80; per external encoder 20; per cam 160; per cam track 40; per probe
<ul> <li>per external encoder</li> <li>per output cam</li> <li>per cam track</li> <li>per probe</li> <li>Positioning axis</li> <li>Number of positioning axes at motion control cycle of 4 ms (typical value)</li> </ul>	80; per external encoder 20; per cam 160; per cam track 40; per probe
<ul> <li>per external encoder</li> <li>per output cam</li> <li>per cam track</li> <li>per probe</li> <li>Positioning axis</li> <li>Number of positioning axes at motion control cycle of 4 ms (typical value)</li> <li>Number of positioning axes at motion control cycle of 8 ms (typical value)</li> </ul>	80; per external encoder 20; per cam 160; per cam track 40; per probe
— per external encoder  — per output cam  — per cam track  — per probe  • Positioning axis  — Number of positioning axes at motion control cycle of 4 ms (typical value)  — Number of positioning axes at motion control cycle of 8 ms (typical value)  Controller	80; per external encoder 20; per cam 160; per cam track 40; per probe 15
— per external encoder  — per output cam  — per cam track  — per probe  • Positioning axis  — Number of positioning axes at motion control cycle of 4 ms (typical value)  — Number of positioning axes at motion control cycle of 8 ms (typical value)  Controller  • PID_Compact	80; per external encoder 20; per cam 160; per cam track 40; per probe  15 30  Yes; Universal PID controller with integrated optimization
— per external encoder  — per output cam  — per cam track  — per probe  • Positioning axis  — Number of positioning axes at motion control cycle of 4 ms (typical value)  — Number of positioning axes at motion control cycle of 8 ms (typical value)  Controller  • PID_Compact  • PID_3Step	80; per external encoder 20; per cam 160; per cam track 40; per probe  15 30  Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves
— per external encoder  — per output cam  — per cam track  — per probe  • Positioning axis  — Number of positioning axes at motion control cycle of 4 ms (typical value)  — Number of positioning axes at motion control cycle of 8 ms (typical value)  Controller  • PID_Compact  • PID_Temp	80; per external encoder 20; per cam 160; per cam track 40; per probe  15 30  Yes; Universal PID controller with integrated optimization
— per external encoder  — per output cam  — per cam track  — per probe  • Positioning axis  — Number of positioning axes at motion control cycle of 4 ms (typical value)  — Number of positioning axes at motion control cycle of 8 ms (typical value)  Controller  • PID_Compact  • PID_3Step  • PID-Temp  Counting and measuring	80; per external encoder 20; per cam 160; per cam track 40; per probe  15 30  Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature
— per external encoder  — per output cam  — per cam track  — per probe  • Positioning axis  — Number of positioning axes at motion control cycle of 4 ms (typical value)  — Number of positioning axes at motion control cycle of 8 ms (typical value)  Controller  • PID_Compact  • PID_3Step  • PID-Temp  Counting and measuring  • High-speed counter	80; per external encoder 20; per cam 160; per cam track 40; per probe  15 30  Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves
— per external encoder  — per output cam  — per cam track  — per probe  • Positioning axis  — Number of positioning axes at motion control cycle of 4 ms (typical value)  — Number of positioning axes at motion control cycle of 8 ms (typical value)  Controller  • PID_Compact  • PID_3Step  • PID-Temp  Counting and measuring  • High-speed counter	80; per external encoder 20; per cam 160; per cam track 40; per probe  15 30  Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature
	80; per external encoder 20; per cam 160; per cam track 40; per probe  15 30  Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature
— per external encoder  — per output cam  — per cam track  — per probe  • Positioning axis  — Number of positioning axes at motion control cycle of 4 ms (typical value)  — Number of positioning axes at motion control cycle of 8 ms (typical value)  Controller  • PID_Compact  • PID_3Step  • PID-Temp  Counting and measuring  • High-speed counter	80; per external encoder 20; per cam 160; per cam track 40; per probe  15 30  Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature

• EN 50121-3-2	Yes; EMC for rail vehicles
● EN 50121-4	Yes; EMC for signal and telecommunications systems
• EN 50124-1	Yes; Railway applications - overvoltage category OV2; pollution degree PD2; rated surge voltage UNi = 0.5 kV; UNm = 24 V DC
• EN 50125-1	Yes; Rail vehicles - see ambient conditions
• EN 50125-2	Yes; Stationary electrical equipment - see ambient conditions
● EN 50125-3	Yes; Signal and telecommunications systems - see ambient conditions; vibrations and shocks: Application point outside of tracks (1 m to 3 m away from track)
• EN 50155	Yes; Rail vehicles - temperature class OT4, ST1/ST2, horizontal mounting position
• EN 61373	Yes; Rail vehicles - vibrations and shocks: Category 1 Class A/B
<ul> <li>Fire protection acc. to EN 45545-2</li> </ul>	Yes; For proof of conformity, see Service & Support
Ambient conditions	
Ambient temperature during operation	
• min.	-40 °C; = Tmin
• max.	up to 55 °C with max. 64 ET 200SP modules, max. 2x 900 mA USB load and max. 2x 500 mA USB load; up to 60 °C with max. 32 ET 200SP modules and 4x 500 mA USB load; FS06 or higher: up to 70 °C with max. 16 ET 200SP modules, 4x 100 mA USB load and no visualization
<ul> <li>horizontal installation, min.</li> </ul>	-40 °C; = Tmin (incl. condensation/frost)
<ul> <li>horizontal installation, max.</li> </ul>	70 °C; = Tmax; +85 °C for 10 min (OT4, ST1/ST2 acc. to EN 50155)
• vertical installation, min.	-40 °C; = Tmin
vertical installation, max.	50 °C; = Tmax; with max. 32 ET 200SP modules and max. 4x 500 mA USB load
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
<ul> <li>Installation altitude above sea level, max.</li> </ul>	2 000 m
Ambient air temperature-barometric pressure-altitude	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m)
Relative humidity	
With condensation, tested in accordance with IEC 60068-	100 %; RH incl. condensation / frost (no commissioning in bedewed state),
2-38, max.	horizontal installation
Vibrations     ● Operation, tested according to IEC 60068-2-6	Yes
Transport, tested according to EC 60068-2-6  Transport, tested acc. to IEC 60068-2-6	Yes
Shock testing	165
tested according to IEC 60068-2-6	Yes
• tested according to IEC 60068-2-27	Yes
• tested according to IEC 60068-2-29	Yes
Storage/transport, tested acc. to IEC 60068-2-27	Yes
Resistance	
Coolants and lubricants	Variable discaland all decolate in the sign
Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
Use in stationary industrial systems	Voc. Close 2D2 mold fungue and drawat angue (with the according
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
to chemically active substances according to EN 60721-3-3  to machinizally active substances according to EN.	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
to mechanically active substances according to EN 60721-3-3  Against mechanical applications are	Yes; Class 3S4 incl. sand, dust, *  Vec: Class 3M8 using the SIRLUS Mounting Vit ET 2005B (6A C1103 6A A00
Against mechanical environmental conditions acc. to EN 60721-3-3  Lea principle and appeid purpose validates.	Yes; Class 3M8 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0//6AG1193-6AB00-0AA0)
Use on land craft, rail vehicles and special-purpose vehicles	Vary Olars FDO model for any state of the st
— to biologically active substances according to EN 60721-3-5	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request
— to chemically active substances according to EN 60721-3-5	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-5	Yes; Class 5S3 incl. sand, dust; *
— Against mechanical environmental conditions acc. to EN 60721-3-5	Yes; Class 5M2 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0/6AG1193-6AB00-0AA0)
<ul> <li>against mechanical environmental conditions in</li> </ul>	Yes; Level 1 (Location LE) using the SIPLUS Mounting Kit ET 200SP

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	
<ul> <li>Coatings for printed circuit board assemblies acc. to EN 61086</li> </ul>	Yes; Class 2 for high reliability
<ul> <li>Protection against fouling acc. to EN 60664-3</li> </ul>	Yes; Type 1 protection
<ul> <li>Electronic equipment on rolling stock acc. to EN 50155</li> </ul>	Yes; Class PC2 protective coating acc. to EN 50155:2017
<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
Operating systems	
pre-installed operating system	Windows 10 IoT Enterprise 2016 LTSB, 64bit, MUI
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	No
— GRAPH	Yes
Know-how protection	
<ul> <li>User program protection/password protection</li> </ul>	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
<ul> <li>Protection level: Write protection</li> </ul>	Yes
<ul> <li>Protection level: Read/write protection</li> </ul>	Yes
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	
• lower limit	adjustable minimum cycle time
• upper limit	adjustable maximum cycle time
Open Development interfaces	
Size of ODK SO file, max.	5.8 Mbyte
Peripherals/Options	
SD card	Optionally for additional mass storage
Dimensions	
Width	160 mm
Height	117 mm
Depth	75 mm
Veights	
Weight, approx.	0.83 kg
Other	
Note:	for use in railway applications, also observe the product information "SIPLUS extreme RAIL" A5E37661960A, Online Support article 109736776
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