## **SIEMENS**

## **Data sheet**



SIPLUS S7-1500 CPU 1518-4 PN/DP based on 6ES7518-4AP00-0AB0 with conformal coating, 0...+60 °C, central processing unit with work memory 4 MB for program and 20 MB for data, 1st interface: PROFINET IRT with 2-port switch, 2nd interface, Ethernet, 3rd interface, Ethernet, 4th interface, PROFIBUS, 1 ns bit performance, SIMATIC Memory Card required

Figure similar

General information	
Product type designation	CPU 1518-4 PN/DP
based on	6ES7518-4AP00-0AB0
Product function	
• Isochronous mode	Yes
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	see entry ID: 109746275
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	6
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
Input current	
Current consumption (rated value)	1.55 A
Inrush current, max.	2.4 A; Rated value
l²t	0.45 A²·s
Power	
Infeed power to the backplane bus	12 W
Power consumption from the backplane bus (balanced)	30 W
Power loss	
Power loss, typ.	24 W
Memory	
SIMATIC memory card required	Yes
Work memory	
<ul><li>integrated (for program)</li></ul>	4 Mbyte
• integrated (for data)	20 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.	1 ns
for word operations, typ.	2 ns
for fixed point arithmetic, typ.	2 ns

for floating point arithmetic, typ.	6 ns
CPU-blocks	
Number of blocks (total)	10 000
DB	10 000
Number, max.	10 000; Number range: 1 to 65535
• Size, max.	10 Mbyte
FB	10 Mbyte
Number, max.	9 998; Number range: 1 to 65535
• Size, max.	512 kbyte
FC FC	012 hoyte
Number, max.	9 999; Number range: 1 to 65535
• Size, max.	5 335, Namber range. 1 to 00000
OB	012 hoyte
• Size, max.	512 kbyte
Number of free cycle OBs	100
Number of time alarm OBs	20
Number of delay alarm OBs	20
Number of cyclic interrupt OBs	20
Number of cyclic interrupt OBs     Number of process alarm OBs	50
Number of DPV1 alarm OBs	3
Number of BPV1 alarm OBs     Number of isochronous mode OBs	2
	2
<ul> <li>Number of technology synchronous alarm OBs</li> <li>Number of startup OBs</li> </ul>	100
Number of asynchronous error OBs	4
Number of asynchronous error OBs	2
Number of synchronous error OBs     Number of diagnostic alarm OBs	1
Nesting depth	
per priority class	24
Counters, timers and their retentivity	27
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	103
• Number	2 048
Retentivity	2 040
— adjustable	Yes
IEC timer	100
• Number	Any (only limited by the main memory)
Retentivity	Truly (only limited by the main memory)
— adjustable	Yes
Data areas and their retentivity	165
Retentive data area (incl. timers, counters, flags), max.	768 kbyte; Available retentive memory for bit memories, timers, counters, DBs,
recentive data area (inol. timers, counters, flags), flax.	and technology data (axes): 700 KB
Flag	
Size, max.	16 kbyte
<ul> <li>Number of clock memories</li> </ul>	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	
Retentivity adjustable	Yes
Retentivity preset	No
Local data	
• 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

per integrated IO subsystem	
— Inputs (volume)	16 kbyte; 16 KB via the integrated PROFINET IO interface, 8 KB via the integrated DP interface
Outoute (volume)	16 kbyte; 16 KB via the integrated PROFINET IO interface, 8 KB via the
— Outputs (volume)	integrated DP interface
per CM/CP	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	
Number of subprocess images, max.	32
Hardware configuration	
Number of distributed IO systems	10
Number of DP masters	
• integrated	1
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be
	inserted in total
Number of IO Controllers	
• integrated	1
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be
	inserted in total
Rack	20. CDI I 24 modulos
Modules per rack, max.      Number of lines, max.	32; CPU + 31 modules
Number of lines, max.  PRO CM	1
PtP CM	the same and a second about DID ONe is such limited by the same has a familiarly
<ul> <li>Number of PtP CMs</li> </ul>	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
Deviation per day, max.	10 s; Typ.: 2 s
Operating hours counter	
Number	8
Clock synchronization	
• supported	Yes
• to DP, master	Yes
• in AS, master	Yes
• in AS, device	Yes
on Ethernet via NTP	Yes
Interfaces	
Number of PROFINET interfaces	3
Number of PROFIBUS interfaces	1
1. Interface	
Interface types	
• RJ 45 (Ethernet)	Yes
Number of ports	2
• integrated switch	Yes
Protocols	
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes
Web server	Yes
Media redundancy	Yes
PROFINET IO Controller	
Services	
— PG/OP communication	Yes
— Isochronous mode	Yes
— IRT	Yes
— PROFlenergy	Yes
Prioritized startup	Yes; Max. 32 PROFINET devices
— Number of connectable IO Devices, max.	512; In total, up to 1 000 distributed I/O devices can be connected via
— INGINION OF COMMENTABLE TO DEVICES, MAX.	012, in total, up to 1 000 distributed 1/0 devices can be confidented via

- Of which IO devices with RT, max - Number of connectable IO Devices for RT, max - of which Inle, max - of which Inle, max - Number of IO Devices but can be simultaneously and variety of the control of the section o		PROFIBUS or PROFINET
- Number of connectable IO Devices for RT, max - of which in line, max - Number of 10 Devices that can be simultaneously activated/dectactivation, max - Number of 10 Devices per load, max - Updasting times  - For send cycle of 250 μs - For send cycle of 250 μs - For send cycle of 250 μs - For send cycle of 27 ms - For send cycle of 17 ms - For send cycle of 27 ms - For send cycle of 17 ms - For send cycle of 250 μs - For send cycle of 17 ms - For send cycle of 250 μs - For send cycle of 27 ms - For send cycle of 4 ms - For send cycle of 4 ms - For send cycle of 4 ms - For send cycle of 17 ms - For send cycle of 4 ms - For send cycle of 17 ms - For send cycle of	— Of which IO devices with IRT may	
of which in line, max Number of 10 Devices that can be simultaneously activated-disparchated, max Number of 10 Devices per (tool, max Updating times Updating times Updating times for send cycle of 25 up s for send cycle of 25 up s for send cycle of 25 up s for send cycle of 15 up s for send cycle of 25 up s for send cycle of 25 up s for send cycle of 25 up s for send cycle of 15 up s for send cycle of 25 up s for send cycle of 15 up s for send cycle of 25 up s for send cycle of 25 up s for send cycle of 25 up s for send cycle of 30 up s for send cycle of 4 up s for send cycle of 5 up s for send cycle of 5 up s for send cycle of 5 up s for send cycle of 4 up s for send cycle of 5 up s		
- Number of 10 Devices that can be simultaneously adholate/deschized.mx Number of 10 Devices per tool, max Updating times  - Updating times  - Updating times  - Updating times  - Fro send cycle of 250 µs - For send cycle of 500 µs - For send cycle of 500 µs - For send cycle of 100 µs		
activate/diseast-value, max.  Number of 10 Devices per tool, max.  Number of 10 Devices per tool, max.  The minimum value of the update sine 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 250 µs to 4 ms - for send cycle of 100 µs 500 µs 100 µs 10 ms - for send cycle of 1 ms 1 ms to 16 ms - for send cycle of 1 ms 2 ms to 20 ms - for send cycle of 4 ms - With IRT and parameterization of "odd" send cycles  Update time for RT  - for send cycle of 250 µs 500 µs 10 250 ms - for send cycle of 250 µs 500 µs 10 250 ms - for send cycle of 1 ms 1 ms to 512 ms - for send cycle of 1 ms 1 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 4 ms 4 ms to 512 ms - for send cycle of 6 ms - FROFINET IO Device  - PROFINET IO Device - Number of IO Controllers with shared device, max.  Interface  - PROFINET IO Controller - PROFINET IO Con		
Update time for IRT  - for send cycle of 250 µs		ů
Update time for IRT	<ul> <li>Number of IO Devices per tool, max.</li> </ul>	8
Update lime for IRT	<ul> <li>Updating times</li> </ul>	
Update time for IRT		
For send cycle of 250 µs	Undate time for IRT	Cornigured user data
For send cycle of 1 ms	•	250 us to 4 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 - 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 - with IRT and parameterization of send cycle of 20 μs - with IRT and send cycle of 500 μs - with IRT and send cycle of 20 μs - with IRT and send cycle of 20 μs - with IRT and send cycle of 2 ms - with IRT and send cycle of 2 ms - with IRT and send cycle of 4 ms - with IRT and send cycle of 500 μs - with IRT and send cycle of 500 μs - with IRT and send cycle of 500 μs - with IRT and send cycle of 500 μs - with IRT and send cycle of 500 μs - with IRT and send cycle of 500 μs - with IRT and send cycle of 500 μs - with IRT and send cycle of 500 μs - with IRT and send cycle of 500 μs - with IRT and send cycle of 500 μs - with IRT and send cycle of 500 μs - with IRT and send cycle of 500 μs - with IRT and send cycle of 500 μs - with IRT and send cycle of 500 μs - with IRT and send cycle of 500 μs - with IRT an		
- 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 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 cy	•	
Update time = set "odd" send clock (any multiple of 125 μs: 375 μs, 625 μs 3 875 μs)	•	
Update time for RT	•	
for send cycle of 250 µs	That is a parameter and conditions of the condit	
- for send cycle of 500 μs	·	
for send cycle of 1 ms	·	
for send cycle of 2 ms		
FOR Send cycle of 4 ms	•	
PROFINET IO Device   Services   PGOP communication   Yes	•	
Services  - PG/OP communication Yes - Isochronous mode No - IRT Yes - PROFlenergy Yes - Shared device Yes - Number of IO Controllers with shared device, max. 4  2. Interface Interface types - RJ 45 (Elhernet) Yes - Number of ports 1 - Interface types - PROFINET IO Device No - SIMATIC communication Yes - RJ 45 (Elhernet) Yes - SIMATIC communication Yes - RJ 45 (Elhernet) No - PROFINET IO Device No - Open IE communication Yes - Interface types - RJ 45 (Elhernet) No - Open IE communication Yes - RJ 45 (Elhernet) No - Open IE communication Yes - RJ 45 (Elhernet) No - PROFINET IO Device No -		4 ms to 512 ms
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IRT Yes PROFlenergy Yes Shared device Yes Number of IO Controllers with shared device, max. 4  2. Intorface  Interface types  ■ RJ 45 (Ethernet) Yes  ■ Number of ports 1 ■ Integrated switch No  Protocols  ■ PROFINET IO Controller No ■ PROFINET IO Device No ■ SIMATIC communication Yes ■ Open IE communication Yes ■ RJ 45 (Ethernet) Yes ■ RJ 45 (Ethernet) No ■ PROFINET IO Controller No ■ PROFINET IO Device No ■ SIMATIC communication Yes ■ Open IE communication Yes ■ Number of ports Yes ■ RJ 45 (Ethernet) Yes ■ RJ 45 (Ethernet) No ■ PROFINET IO Controller No ■ Number of ports 1 No ■ Integrated switch No  Protocols ■ PROFINET IO Controller No ■ PROFINET IO Device No ■ SIMATIC communication Yes ■ Open IE communication Yes ■ Open IE communication Yes ■ Number of connections, max. 48; for the integrated PROFIBUS DP interface ■ PROFIBUS DP master ■ Number of DP devices PROFINET  Services  PGOP communication Yes		
- PROFilenergy - Shared device - Number of IO Controllers with shared device, max  2. Interface Interface types  • RJ 45 (Ethernet) • Number of ports • Integrated switch PROFINET IO Controller • PROFINET IO Controller • PROFINET IO Communication • Ves • SIMATIC communication • We server  3. Interface Interface types  • RJ 45 (Ethernet) • No • Open IE communication • Yes • Integrated switch  No  Protocols  • PROFINET IO Device • No • With server  3. Interface Interface types • RJ 45 (Ethernet) • Integrated switch  No  Protocols • PROFINET IO Controller • No • Integrated switch  No  PROFINET IO Controller • PROFINET IO Device • No • SIMATIC communication • Yes • Open IE communication • Yes • Open IE communication • Yes • Number of connections, max. • Wes server • Number of DP devices • PROFIBUS DP master • Number of DP devices • PROFIBUS OP PROFINET  Services • PC/OP communication • Yes • PROFIBUS or PROFINET		
Shared device Number of IO Controllers with shared device, max.  2. Interface  Interface types  • RJ 45 (Ethernet) Yes • Number of ports 1 • Integrated switch No  Protocols • PROFINET IO Controller No • PROFINET IO Device No • SIMATIC communication Yes • Web server Yes  Interface types  • RJ 45 (Ethernet) Yes • No • PROFINET IO Controller No • PROFINET IO Device No • Island to communication Yes • Web server Yes  3. Interface  Interface types  • RJ 45 (Ethernet) Yes • Integrated switch No  Protocols  • PROFINET IO Controller No • PROFINET IO Controller No • PROFINET IO Controller No • PROFINET IO Device No • SIMATIC communication Yes • SIMATIC communication Yes • SIMATIC communication Yes • SIMATIC controller No • PROFINET IO Device No • SIMATIC controller Yes • Web server Yes  PROFIBUS DP master • Number of DP devices 125; In total, up to 1 000 distributed I/O devices can be connected via PROFIBUS or PROFINET  Services  PG/OP communication Yes Equidistance Yes		
Number of IO Controllers with shared device, max.  2. Interface Interface types  PAJ 45 (Ethernet) Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Web server  7. Interface Interface types  PROFINET IO Controller Protocols PROFINET IO Controller Protocols PROFINET IO Controller Protocols PROFINET IO Controller Protocols PROFINET IO Controller PROFINET IO Device No PROFINET IO Device No PROFIBUS DP master Number of connections, max. Protocols PROFIBUS DP master Number of DP devices PROFIBUS DP master Number of DP devices PROFIBUS OP PROFINET PROFIBUS OF PROFINET  Services PROFIBUS OF PROFINET  Services PROFIBUS OF PROFINET  Services PROFIBUS OF PROFINET		
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• RJ 45 (Ethernet) • Number of ports • integrated switch • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Web server  7 es • Number of ports • Integrated switch • PROFINET IO Device • SIMATIC communication • Yes • Unitegrated switch • PROFINET IO Device • SIMATIC communication • Yes • Web server  7 es  • RJ 45 (Ethernet) • Number of ports • Integrated switch • No  Protocols • PROFINET IO Controller • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Yes • PROFIBUS DP master • Number of connections, max. • max. number of connections, max. • max. number of Profibus DP interface • PROFIBUS OP PROFIBUS	O lutarifaca	
Number of ports integrated switch  No  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Yes Web server  No		
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Protocols	Interface types • RJ 45 (Ethernet)	
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PROFINET IO Device SIMATIC communication Yes Open IE communication Yes Web server Yes  Interface Interface types  PROFINET IO Controller Integrated switch PROFINET IO Controller PROFINET IO Controller SIMATIC communication Yes Open IE communication Yes Web server Yes  PROFIBUS DP master  Number of connections, max. Services PROFIBUS or PROFINET  PROFIBUS or PROFINET  PROFIBUS or PROFINET  PROFIBUS or PROFINET  PROFIBUS or PROFIBUS or PROFINET  PROFIBUS or PROFINET  PROFIBUS or PROFINET  Services  PROFO communication Yes PROFIBUS or PROFINET  Services PROFO communication Yes PROFIBUS or PROFINET	Interface types  • RJ 45 (Ethernet)  • Number of ports  • integrated switch	1
SIMATIC communication Open IE communication Yes Web server Yes  Interface  Interface types  RJ 45 (Ethernet) Number of ports Intergrated switch No  Protocols  PROFINET IO Controller No PROFINET IO Device No SIMATIC communication Yes Web server Yes  PROFIBUS DP master  Number of connections, max. FROFIBUS OP max.  Max. number of DP devices PROFIBUS or PROFINET  Services  PROFO communication Yes Services PROFIBUS OP manunication Yes Yes PROFIBUS OP max. Yes PROFIBUS OP max. Yes PROFIBUS OP max. Yes PROFIBUS OP ROFINET  Services PROFIBUS OP ROFINET  Services PROFIBUS OP ROFINET  Yes PROFIBUS OP ROFINET  Services PROFIBUS OP ROFINET  Services PROFIBUS OP ROFINET	Interface types  • RJ 45 (Ethernet)  • Number of ports  • integrated switch  Protocols	1 No
Open IE communication Web server Yes  Interface  Interface types  RJ 45 (Ethernet) Number of ports Integrated switch No  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Wes server  PROFIBUS DP master  Number of connections, max. max. number of DP devices PROFIBUS or PROFINET  Services  PG/OP communication Yes PROFIBUS or PROFINET  Services PROFIBUS or PROFINET  Services PROFIBUS or PROFINET	Interface types  • RJ 45 (Ethernet)  • Number of ports  • integrated switch  Protocols  • PROFINET IO Controller	1 No
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Interface types  • RJ 45 (Ethernet) • Number of ports • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server  PROFIBUS DP master  • Number of connections, max. • max. number of DP devices  — PG/OP communication  Yes  - Equidistance  Yes  Yes	Interface types  • RJ 45 (Ethernet)  • Number of ports  • integrated switch  Protocols  • PROFINET IO Controller  • PROFINET IO Device  • SIMATIC communication  • Open IE communication	1 No No No Yes Yes
<ul> <li>RJ 45 (Ethernet)</li> <li>Number of ports</li> <li>integrated switch</li> <li>No</li> </ul> Protocols <ul> <li>PROFINET IO Controller</li> <li>PROFINET IO Device</li> <li>No</li> <li>SIMATIC communication</li> <li>Open IE communication</li> <li>Wes</li> <li>Web server</li> <li>Web server</li> <li>Number of connections, max.</li> <li>max. number of DP devices</li> <li>125; In total, up to 1 000 distributed I/O devices can be connected via PROFIBUS or PROFINET</li> </ul> Services <ul> <li>PG/OP communication</li> <li>Yes</li> <li>Equidistance</li> <li>Yes</li> </ul>	Interface types  • RJ 45 (Ethernet)  • Number of ports  • integrated switch  Protocols  • PROFINET IO Controller  • PROFINET IO Device  • SIMATIC communication  • Open IE communication  • Web server	1 No No No Yes Yes
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<ul> <li>integrated switch</li> <li>Protocols</li> <li>PROFINET IO Controller</li> <li>PROFINET IO Device</li> <li>SIMATIC communication</li> <li>Open IE communication</li> <li>Web server</li> <li>PROFIBUS DP master</li> <li>Number of connections, max.</li> <li>max. number of DP devices</li> <li>PROFIBUS or PROFINET</li> </ul> Services <ul> <li>PG/OP communication</li> <li>Yes</li> <li>PG/OP communication</li> <li>Yes</li> <li>Pequidistance</li> </ul>	Interface types  • RJ 45 (Ethernet)  • Number of ports  • integrated switch  Protocols  • PROFINET IO Controller  • PROFINET IO Device  • SIMATIC communication  • Open IE communication  • Web server  3. Interface  Interface types	1 No No No Yes Yes Yes
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<ul> <li>PROFINET IO Controller</li> <li>PROFINET IO Device</li> <li>No</li> <li>SIMATIC communication</li> <li>Open IE communication</li> <li>Wes</li> <li>Web server</li> <li>PROFIBUS DP master</li> <li>Number of connections, max.</li> <li>max. number of DP devices</li> <li>PROFIBUS or PROFINET</li> </ul> Services <ul> <li>PG/OP communication</li> <li>Yes</li> </ul> Yes Yes Peg/OP communication <ul> <li>Yes</li> <li>Equidistance</li> <li>Yes</li> </ul>	Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  Interface Interface types RJ 45 (Ethernet) Number of ports	1 No No No Yes Yes Yes 1
<ul> <li>PROFINET IO Device</li> <li>SIMATIC communication</li> <li>Open IE communication</li> <li>Wes</li> <li>Web server</li> <li>PROFIBUS DP master</li> <li>Number of connections, max.</li> <li>max. number of DP devices</li> <li>PROFIBUS or PROFINET</li> </ul> Services <ul> <li>PG/OP communication</li> <li>Equidistance</li> </ul> No <ul> <li>Yes</li> </ul> Yes	Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server  3. Interface  Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch	1 No No No Yes Yes Yes 1
<ul> <li>SIMATIC communication</li> <li>Open IE communication</li> <li>Wes</li> <li>Web server</li> <li>PROFIBUS DP master</li> <li>Number of connections, max.</li> <li>max. number of DP devices</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Equidistance</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> </ul>	Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  Interface Interface types RJ 45 (Ethernet) Number of ports integrated switch  Protocols	1 No No No Yes Yes Yes 1 No
<ul> <li>Open IE communication</li> <li>Web server</li> <li>PROFIBUS DP master</li> <li>Number of connections, max.</li> <li>max. number of DP devices</li> <li>125; In total, up to 1 000 distributed I/O devices can be connected via PROFIBUS or PROFINET</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Equidistance</li> <li>Yes</li> </ul>	Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server  3. Interface  Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols • PROFINET IO Controller	1 No No No No Yes Yes Yes 1 No No
● Web server  PROFIBUS DP master  ● Number of connections, max.  ● max. number of DP devices  125; In total, up to 1 000 distributed I/O devices can be connected via PROFIBUS or PROFINET  Services  — PG/OP communication — Equidistance  Yes	Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  Interface Interface types RJ 45 (Ethernet) Number of ports integrated switch  Protocols PROFINET IO Controller PROFINET IO Device	1 No No No No Yes Yes Yes 1 No No No
PROFIBUS DP master  • Number of connections, max.  • max. number of DP devices  125; In total, up to 1 000 distributed I/O devices can be connected via PROFIBUS or PROFINET  Services  — PG/OP communication — Equidistance  Yes	Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server  3. Interface  Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication	1 No No No No Yes Yes Yes 1 No No No No No Yes
<ul> <li>Number of connections, max.</li> <li>max. number of DP devices</li> <li>125; In total, up to 1 000 distributed I/O devices can be connected via PROFIBUS or PROFINET</li> <li>Services</li> <li>PG/OP communication</li> <li>Equidistance</li> <li>Yes</li> </ul>	Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  3. Interface Interface types RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication	1 No No No No Yes Yes Yes  1 No No No No Yes Yes
<ul> <li>max. number of DP devices</li> <li>125; In total, up to 1 000 distributed I/O devices can be connected via PROFIBUS or PROFINET</li> <li>Services</li> <li>— PG/OP communication</li> <li>— Equidistance</li> <li>Yes</li> </ul>	Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  3. Interface Interface types RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication	1 No No No No Yes Yes Yes  1 No No No No Yes Yes
PROFIBUS or PROFINET  Services  — PG/OP communication Yes  — Equidistance Yes	Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  Interface Interface types RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  PROFIBUS DP master	1 No No No No Yes Yes Yes 1 No No No No Yes Yes Yes
<ul><li>— PG/OP communication</li><li>— Equidistance</li><li>Yes</li></ul>	Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  Interface Interface types RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  PROFINET OPevice SIMATIC communication Web server  PROFIBUS DP master Number of connections, max.	1 No No No No Yes Yes Yes  1 No No No No Yes Yes Yes Yes
— Equidistance Yes	Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  Interface Interface types RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  PROFINET OPevice SIMATIC communication Web server  PROFIBUS DP master Number of connections, max.	No No No Yes Yes Yes  Yes  1 No No No No Yes Yes  48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via
	Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  Interface Interface types RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  PROFIBUS DP master Number of connections, max. max. number of DP devices	No No No Yes Yes Yes  Yes  1 No No No No Yes Yes  48; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via
— Isochronous mode Yes	Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  3. Interface Interface types RJ 45 (Ethernet) Number of ports integrated switch  Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  PROFIBUS DP master Number of connections, max. max. number of DP devices  Services	No No No Yes Yes Yes  Yes  1 No No No No Yes Yes Yes  248; for the integrated PROFIBUS DP interface 125; In total, up to 1 000 distributed I/O devices can be connected via PROFIBUS or PROFINET
	Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  3. Interface Interface types RJ 45 (Ethernet) Number of ports integrated switch  Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server  PROFIBUS DP master Number of connections, max. max. number of DP devices  Services — PG/OP communication	No No No Yes Yes Yes  Yes  1 No No No No Yes Yes Yes  2  1 No No No Pes Yes Yes Yes Yes Yes Yes Yes Yes Yes Y

— activation/deactivation of DP devices	Yes
4. Interface	
Interface types	
• RS 485	Yes
Number of ports	1
Protocols	
<ul> <li>PROFIBUS DP master</li> </ul>	Yes
<ul> <li>PROFIBUS DP device</li> </ul>	No
SIMATIC communication	Yes
PROFIBUS DP master	
Number of connections, max.	48; for the integrated PROFIBUS DP interface
Services	
— PG/OP communication	Yes
<ul> <li>activation/deactivation of DP devices</li> </ul>	Yes
Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
<ul> <li>Autonegotiation</li> </ul>	Yes
Autocrossing	Yes
Industrial Ethernet status LED	Yes
RS 485	
Transmission rate, max.	12 Mbit/s
Protocols	
PROFIsafe	No
Number of connections	
Number of connections, max.	384; via integrated interfaces of the CPU and connected CPs / CMs
Number of connections reserved for ES/HMI/web	10
Number of connections via integrated interfaces	192
Number of S7 routing paths	64; in total, only 16 S7-Routing connections are supported via PROFIBUS
Redundancy mode	or, in total, only to or reducing connection and supported via river is se-
Media redundancy	
— MRP	Yes; as MRP redundancy manager and/or MRP client; max. number of devices
— WI (1	in the ring: 50
<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	
S7 routing	Yes
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	
• 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
— Data length, max.  • UDP	Yes
— Data length, max.	1 472 byte
— Data Ichigili, Max.	I TI L DYLC
▲ DHCD	
• DHCP	No
• SNMP	No Yes
• SNMP • DCP	No Yes Yes
<ul><li>SNMP</li><li>DCP</li><li>LLDP</li></ul>	No Yes
SNMP DCP LLDP Web server	No Yes Yes Yes
<ul><li>SNMP</li><li>DCP</li><li>LLDP</li><li>Web server</li><li>HTTP</li></ul>	No Yes Yes Yes Yes Yes Standard and user-defined pages
SNMP DCP LLDP Web server HTTP HTTPS	No Yes Yes Yes
• SNMP • DCP • LLDP  Web server • HTTP • HTTPS  Further protocols	Yes Yes Yes; Standard and user-defined pages Yes; Standard and user-defined pages
SNMP DCP LLDP Web server HTTP HTTPS Further protocols MODBUS	No Yes Yes Yes Yes Yes Standard and user-defined pages
• SNMP • DCP • LLDP  Web server • HTTP • HTTPS  Further protocols	No Yes Yes Yes Yes Yes; Standard and user-defined pages Yes; Standard and user-defined pages Yes; MODBUS TCP
SNMP DCP LLDP Web server HTTP HTTPS Further protocols MODBUS Isochronous mode Equidistance	Yes Yes Yes; Standard and user-defined pages Yes; Standard and user-defined pages
SNMP DCP LLDP Web server HTTP HTTPS Further protocols MODBUS Isochronous mode	No Yes Yes Yes Yes Yes; Standard and user-defined pages Yes; Standard and user-defined pages Yes; MODBUS TCP

Drawaya alayya	Voc
Program alarms	Yes
Number of configurable program messages, max.	10 000
Number of simultaneously active program alarms	1 000
Test commissioning functions	
Status block	Yes; Up to 16 simultaneously
Single step	No
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>	
<ul><li>of which status variables, max.</li></ul>	200; per job
— of which control variables, max.	200; per job
Forcing	
<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>	3 200
— of which powerfail-proof	1 000
Traces	
Number of configurable Traces	8
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
Connection display LINK TX/RX	Yes
Supported technology objects	
Motion Control	Yes
Speed-controlled axis	163
Number of speed-controlled axes, max.	128; Up to 128 axes in total (speed-controlled, positioning axis, external encoders) are supported
Positioning axis	51.0040.07 4.10 capportou
Number of positioning axes, max.	128; Up to 128 axes in total (speed-controlled, positioning axis, external
realiser of positioning axoo, max.	encoders) are supported
External encoders	
<ul> <li>Number of external encoders, max.</li> </ul>	128; Up to 128 axes in total (speed-controlled, positioning axis, external
	encoders) are supported
Controller	
PID_Compact	Yes; Universal PID controller with integrated optimization
PID_3Step	Yes; PID controller with integrated optimization for valves
Counting and measuring	
High-speed counter	Yes
Standards, approvals, certificates	
Ecological footprint	
environmental product declaration	Yes
Global warming potential	
global warming potential, (total) [CO2 eq]	570 kg
— global warming potential, (during production) [CO2	96.9 kg
eq]  — global warming potential, (during operation) [CO2	483 kg
— global warming potential, (during operation) [CO2 eq]	400 ng
global warming potential, (after end of life cycle)	-9.97 kg
[CO2 eq] Ambient conditions	
Ambient temperature during operation	0°C: - Train (incl. condensation (freet)
horizontal installation, min.	0 °C; = Tmin (incl. condensation/frost)
<ul> <li>horizontal installation, max.</li> </ul>	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
<ul> <li>vertical installation, min.</li> </ul>	0 °C; = Tmin
• vertical installation, max.	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
Ambient temperature during storage/transportation	
The state of the s	

a min	40 °C
	-40 °C 70 °C
max.  Altitude during operation relating to sea level	70 0
Installation altitude above sea level, max.	5 000 m
Ambient air temperature-barometric pressure-altitude	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)
Relative humidity	100 (4 7 14 14 14 14 14 14 14 14 14 14 14 14 14
<ul> <li>With condensation, tested in accordance with IEC 60068- 2-38, max.</li> </ul>	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
Coolants and lubricants	
<ul> <li>Resistant to commercially available coolants and lubricants</li> </ul>	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
— to chemically active substances according to EN 60721-3-3	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, *
Use on ships/at sea	
<ul> <li>to biologically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
<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); $^{\star}$
<ul> <li>to mechanically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6S3 incl. sand, dust; *
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>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
— FBD	Yes
— STL	Yes
— SCL	Yes
— GRAPH	Yes
Know-how protection	
User program protection/password protection	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
Password for display	Yes
Protection level: Write protection	Yes
Protection level: Read/write protection	Yes
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	
• lower limit	adjustable minimum cycle time
upper limit	adjustable maximum cycle time

Width       175 mm         Height       147 mm         Depth       129 mm         Weights         Weight, approx.       1 988 g	Dimensions	
Weights Weight, approx. 1 988 g	Width	175 mm
Weights Weight, approx. 1 988 g	Height	147 mm
Weight, approx. 1 988 g	Depth	129 mm
	Weights	
	Weight, approx.	1 988 g
Classifications	Classifications	

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

## Approvals / Certificates

**General Product Approval** 

Miscellaneous



Manufacturer Declaration







EMV

For use in hazardous locations

Maritime application

**Environment** 

<u>KC</u>



<u>IECE</u>×







last modified:

12/8/2024