## **SIEMENS**

## Data sheet

## 6AG1518-4AP00-4AB0

SIPLUS S7-1500 CPU 1518-4 PN/DP with conformal coating based on 6ES7518-4AP00-0AB0 . Central processing unit with Work memory 3 MB for Program and 10 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
HW functional status	FS01
Firmware version	V1.5
Product function	
• Isochronous mode	Yes
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	V13
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	6
Mode selector switch	1
Supply voltage	
Type of supply voltage	24 V DC

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 A <sup>2</sup> ·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	
• integrated (for program)	3 Mbyte
• integrated (for data)	10 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	
Number, max.	10 000; Number range: 1 to 65535
• Size, max.	10 Mbyte
FB	
• Number, max.	9 998; Number range: 1 to 65535
• Size, max.	512 kbyte
FC	
Number, max.	9 999; Number range: 1 to 65535
• Size, max.	512 kbyte
ОВ	
• Size, max.	512 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
<ul> <li>Number of cyclic interrupt OBs</li> </ul>	20
<ul> <li>Number of process alarm OBs</li> </ul>	50
<ul> <li>Number of DPV1 alarm OBs</li> </ul>	3
Number of isochronous mode OBs	2
Number of technology synchronous alarm OBs	2
Number of startup OBs	100
<ul> <li>Number of asynchronous error OBs</li> </ul>	4
<ul> <li>Number of synchronous error OBs</li> </ul>	2
<ul> <li>Number of diagnostic alarm OBs</li> </ul>	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	
Data areas and their retentivity  Retentive data area (incl. timers, counters, flags),	768 kbyte; Available retentive memory for bit memories, timers,
max.	counters, DBs, and technology data (axes): 700 KB
Flag	
Number, 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
<ul> <li>Retentivity preset</li> </ul>	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
— Outputs (volume)	16 kbyte; 16 KB via the integrated PROFINET IO interface, 8 KB via the integrated DP interface
per CM/CP	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	
<ul> <li>Number of subprocess images, max.</li> </ul>	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	
Modules per rack, max.	32; CPU + 31 modules
<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	8
Clock synchronization	
• supported	Yes
● to DP, master	Yes

• in AS, master	Yes
• in AS, slave	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	
<ul><li>Number of ports</li></ul>	2	
<ul><li>integrated switch</li></ul>	Yes	
Protocols		
PROFINET IO Controller	Yes	
<ul> <li>PROFINET IO Device</li> </ul>	Yes	
<ul> <li>SIMATIC communication</li> </ul>	Yes	
<ul> <li>Open IE communication</li> </ul>	Yes	
<ul><li>Web server</li></ul>	Yes	
Media redundancy	Yes	
PROFINET IO Controller		
Services		

	ces	

— 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 PROFIBUS or PROFINET
<ul><li>Of which IO devices with IRT, max.</li></ul>	64
— Number of connectable IO Devices for RT,	256
max.	
— of which in line, max.	256
<ul> <li>Number of IO Devices that can be</li> </ul>	8
simultaneously activated/deactivated, max.	
<ul> <li>Number of IO Devices per tool, max.</li> </ul>	8
— 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	

250 µs to 4 ms

500 μs to 8 ms

1 ms to 16 ms

2 ms to 32 ms

— for send cycle of 250  $\mu s$ 

— for send cycle of 500  $\mu s$ 

— for send cycle of 1 ms

— for send cycle of 2 ms

— for send cycle of 4 ms	4 ms to 64 ms
With IRT and parameterization of "odd"	Update time = set "odd" send clock (any multiple of 125 μs: 375
send cycles	μs, 625 μs 3 875 μs)
Update time for RT	
— for send cycle of 250 μs	250 μs to 128 ms
— for send cycle of 500 μs	500 μs to 256 ms
— for send cycle of 1 ms	1 ms to 512 ms
— for send cycle of 2 ms	2 ms to 512 ms
— for send cycle of 4 ms	4 ms to 512 ms
PROFINET IO Device	1 III 6 6 7 2 III 6
Services	
— PG/OP communication	Yes
— Isochronous mode	No
— ISOCITIONOUS MODE  — IRT	Yes
	Yes
— PROFlenergy	
— Shared device	Yes
<ul> <li>Number of IO Controllers with shared device, max.</li> </ul>	4
device, max.	
2. Interface	
Interface types	
• RJ 45 (Ethernet)	Yes
<ul> <li>Number of ports</li> </ul>	1
• integrated switch	No
Protocols	
<ul> <li>PROFINET IO Controller</li> </ul>	No
PROFINET IO Device	No
<ul> <li>SIMATIC communication</li> </ul>	Yes
Open IE communication	Yes
• Web server	Yes
3. 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
Open IE communication	Yes
Web server	Yes
PROFIBUS DP master	

<ul> <li>Number of connections, max.</li> </ul>	48; for the integrated PROFIBUS DP interface
Number of DP slaves, max.	125; In total, up to 1 000 distributed I/O devices can be connected
Number of Br. Slaves, max.	via PROFIBUS or PROFINET
Services	
— PG/OP communication	Yes
— Equidistance	Yes
— Isochronous mode	Yes
<ul> <li>Activation/deactivation of DP slaves</li> </ul>	Yes
4. Interface	
Interface types	
• RS 485	Yes
<ul><li>Number of ports</li></ul>	1
Protocols	
PROFIBUS DP master	Yes
<ul> <li>PROFIBUS DP slave</li> </ul>	No
SIMATIC communication	Yes
Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
<ul><li>Autonegotiation</li></ul>	Yes
<ul><li>Autocrossing</li></ul>	Yes
<ul> <li>Industrial Ethernet status LED</li> </ul>	Yes
RS 485	
Transmission rate, max.	12 Mbit/s
Protocols	
Number of connections	
<ul> <li>Number of connections, max.</li> </ul>	384; via integrated interfaces of the CPU and connected CPs / CMs
<ul> <li>Number of connections reserved for ES/HMI/web</li> </ul>	10
<ul> <li>Number of connections via integrated interfaces</li> </ul>	192
Number of S7 routing paths	64; in total, only 16 S7-Routing connections are supported via PROFIBUS
Redundancy mode	
Media redundancy	
— MRP	Yes; as MRP redundancy manager and/or MRP client; max. number of devices 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 S7 communication, as client See online help (S7 communication, user data size)  Open IE communication  • (TCP/IP — Data length, max. — several passive connections per port, supported  • ISO-on-TCP (RFC1006) — Data length, max. — 46 k byte — Data length, max. — 54 k byte — Data length, max.  • UDP — Data length, max. • 1472 byte — Data length, max. • UDP — Data length, max. • 1472 byte — Data length, max. • UDP — SNMP — Yes — OCP • SNMP • NO • SNMP • Yes • LLDP  Web server • HITTP • Yes; Standard and user-defined pages • MODBUS  • MODBUS  Yes; WODBUS TCP  Sochronous mode  Equidistance  Yes  S7 message functions Number of login stations for message functions, max.  Number of offingurable program messages, max. Number of offingurable program messages, max. Number of simultaneously active program alarms  Test commissioning functions  Status/control • Status/control variables • Variables • Number of variables, max. — of which setatus variables, max. — of which setatus variables, max. — of which control variables, max. — of which setatus variables, max. — of which control variables, max. — of which setatus variables, max. — of whi		
User data per job, max.  See online help (S7 communication, user data size)  Open IE communication  Test communication  Test communication  Test communication  Test communication  Test communication  Test communication  See online help (S7 communication, user data size)  Yes  Yes  Test communication, user data size)  Yes  Yes  Test communication, user data size)  Yes  Standard and user-defined pages  Yes; Standard and user-defined pages  Yes; Standard and user-defined pages  Yes; Standard and user-defined pages  Further protocols  Yes; Standard and user-defined pages  Further protocols  Yes; MODBUS TCP  Sochronous mode  Equidistance  Yes  Yes  NoDBUS TCP  Sochronous mode  Test commissioning functions, max.  Yes  Number of simultaneously active program alarms  Yes  No  Number of simultaneously active program alarms  Yes  No  Status block  Yes; Up to 16 simultaneously  No  Status scontrol variable  Yes  Inputs, outputs, memory bits, DB, times, counters  Noricing, variables, max.  Of which control variables, max.  Of which status variables, max.  Of which control variables, m	<ul> <li>S7 communication, as server</li> </ul>	Yes
Open IE communication  • TCP/IP  — Data length, max. — several passive connections per port, supported  • ISO-on-TCP (RFC1006) — Data length, max.  • UDP — Data length, max.  • UDP — Data length, max.  • I 472 byte  • DHCP  • SNMP — Ves  • DHCP • No  • SNMP • Yes  • LLDP • Yes  • LLDP  • LLDP  • Yes  • LTTP  • Yes; Standard and user-defined pages  • HTTP • Yes; Standard and user-defined pages  • HTTPS • Yes; Standard and user-defined pages  • HTTPS • Yes; Standard and user-defined pages  • MODBUS  Further protocols • MODBUS  * Yes  * MODBUS TCP   * Sochronous mode  Equidistance  * Yes  * Yes  Number of login stations for message functions, max.  Number of configurable program messages, max.  Number of simultaneously active program alarms  * Yes  Number of simultaneously active program alarms  * Yes  Status block  * Yes; Up to 16 simultaneously  Single step  No  Status Stock  * Yes  Status Stock  • Variables • Variables • Variables • Variables, max. — of which status variables, max. — of which control variables, max.  • Forcing • Forcing • Forcing • Forcing • Number of variables, max.  Number of variables, max.  Inputs, outputs  Inputs, outputs  Inputs, outputs • Number of variables, max.  • Of which control variables, max.  • Of which control variables, max.  • Of which control variables, max.  • Forcing • Forcing • Number of variables, max.  • Number of variables, max.  • Number of variables, max.  • Outputs	<ul> <li>S7 communication, as client</li> </ul>	Yes
TCP/IP  Data length, max.  Between the service of	<ul> <li>User data per job, max.</li> </ul>	See online help (S7 communication, user data size)
Data length, max several passive connections per port, supported  ISO-on-TCP (RFC1006) Data length, max SNMP SN	Open IE communication	
several passive connections per port, supported  • ISO-on-TCP (RFC1006)  Data length, max.  • UDP  Data length, max.  • UDP  Data length, max.  • UDP  Data length, max.  • DHCP  Data length, max.  • DHCP  SNMP  SNMP  DCP  SULLDP  Ves  LLLDP  Yes  Web server  • HTTP  HTTPS  Ves; Standard and user-defined pages  HTTPS  Ves; Standard and user-defined pages  HTTPS  Ves; Standard and user-defined pages  WODBUS  WODBUS  Yes; WODBUS TCP  Standard and user-defined pages  WODBUS  Ves; WODBUS TCP  Standard and user-defined pages  Ves; Standard and user-defined pages  WODBUS  Ves; WODBUS TCP  Standard and user-defined pages  Ves; WODBUS TCP  Standard and user-defined pages  Ves; WODBUS TCP  Standard and user-defined pages  Ves; UD to 16 simultaneously active program alarms  Ves; Up to 16 simultaneously  Status block  Ves; Up to 16 simultaneously  Status control variable  Ves ariables  Ves ariables  Ves ariables  Ves ariables, max.  Of which status variables, max.  Of which control variables, max.  Of which or variables, max.  Of which control variables, max.  Of which control variables, max.  Of which or variables, max.  Of which or variables, max.  Of which or variables, max.  Of which control variables, max.  Of which or variables, max.  Of which	● TCP/IP	Yes
supported  ISO-on-TCP (RFC1006) Data length, max.  IUDP Yes Data length, max.  I472 byte  Data length, max.  I472 byte  DHCP No SNMP Yes DCP Yes  LLDP Yes  LLDP Yes  Webserver  HTTP Yes; Standard and user-defined pages Further protocols  MODBUS Yes; MODBUS TCP  SY message functions  Number of login stations for message functions, max. Program alarms Number of simultaneously active program alarms  Number of simultaneously active program alarms  Test commissioning functions  Status block Single step Ves Status/control  Status/control  Status/control  Status/control variables, max. Of which status variables, max. Of which control variables, max. Inputs, outputs Inp	— Data length, max.	64 kbyte
Obta length, max.  OUDP  Data length, max.  OHCP  Data length, max.  OHCP  No  SNMP  OBCP  OLLDP  Web server  OHTTP  HTTP  Yes; Standard and user-defined pages  Further protocols  MODBUS  Sochronous mode  Equidistance  Yes  Ves  Ves  Ves  Ves  Ves  Ves  MODBUS TCP  Sochronous mode  Equidistance  Yes  Today a stations for message functions, max.  Program alarms  Ves  Number of login stations for messages, max.  Number of simultaneously active program alarms  Test commissioning functions  Status block  Yes; Up to 16 simultaneously  Status/control  Status/control  Status/control  Status/control  Status/control  Ostatus/control  Status/control  Ostatus/control  Status variables, max.  Of which status variables, max.  Of which control variables, max.  Outputs  O		Yes
UDP Yes   Data length, max.   DHCP No   SMMP Yes   DCP Yes   ULDP Yes   Web server   HTTP Yes; Standard and user-defined pages   HTTPS Yes; Standard and user-defined pages   Yes; MODBUS TCP    Isochronous mode   Equidistance Yes    Yes    S7 message functions   Number of login stations for message functions, max.   Yes   Number of simultaneously active program alarms Yes   Number of simultaneously active program alarms   Number of simultaneously active program alarms   10 000    Test commissioning functions   Status block Yes; Up to 16 simultaneously   No   Status/control    Status/control    Status/control variable   Yes   No   Inputs, outputs, memory bits, DB, times, counters   Number of variables, max.   Of which control variables, max.   Of which status variables, max.   Of which control variables, max.   Of which control variables, max.   Porcing    Forcing   Forcing, variables   Number of variables, max.   Inputs, outputs   Inputs, outputs	• ISO-on-TCP (RFC1006)	Yes
— Data length, max.  • DHCP • SNMP • SNMP • DCP • LLDP • Ves • LLDP • Web server • HTTP • HTTPS • Yes; Standard and user-defined pages • HTTPS • Yes; Standard and user-defined pages  Further protocols • MODBUS  **Standard and user-defined pages  **Further protocols • MODBUS  **Standard and user-defined pages  **Further protocols • MODBUS  **Standard and user-defined pages  **Further protocols • MODBUS  **Standard and user-defined pages  **Yes  **MODBUS TCP  **Yes  **Yes  **Yes  **Yes  **Yes  **Number of variable pages  **Yes  **	— Data length, max.	64 kbyte
DHCP SNMP SNMP PSNMP Yes DCP Yes  LLDP Yes  Web server  HTTP HTTPS Yes; Standard and user-defined pages Further protocols MODBUS Yes; MODBUS TCP  Sochronous mode  Equidistance Yes  S7 message functions Number of login stations for message functions, max. Program alarms Number of simultaneously active program alarms  Status block Yes; Up to 16 simultaneously Single step No Status/control  Status/control  Status/control  Status/control  Status/control  Status/control  Status/control  Ovariables Number of variables, max. Of which status variables, max. Of which control variables, max. Description Status, outputs	• UDP	Yes
SNMP DCP Yes  LLDP Yes  Web server  HTTP HTTP Yes; Standard and user-defined pages Further protocols MODBUS  Society  Yes; MODBUS TCP  Society  Yes  Web server  Yes; MODBUS TCP  Society  Yes  Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of simultaneously active program alarms  Status block Yes; Up to 16 simultaneously Single step No  Status/control  Status/control  Status/control  Status/control  Status/control variable Ves Number of variables, max. Of which status variables, max. Of which control variables, max. Of which control variables, max. Of which control variables, max. Porcing Forcing Forcing Forcing Forcing Inputs, outputs	— Data length, max.	1 472 byte
DCP LLDP Yes  Web server  HTTP Yes; Standard and user-defined pages Further protocols MODBUS Yes; MODBUS TCP  Isochronous mode  Equidistance Yes  S7 message functions  Number of login stations for message functions, max. Program alarms Number of configurable program messages, max. Number of simultaneously active program alarms  1 000  Test commissioning functions  Status block Yes; Up to 16 simultaneously Single step Variables Number of variables, max. — of which status variables, max. — of which control variables, max. — of which con	• DHCP	No
● LLDP  Web server  ● HTTP  HTTPS  Yes; Standard and user-defined pages  Further protocols  ● MODBUS  Yes; MODBUS TCP  Isochronous mode  Equidistance  Yes  S7 message functions  Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  Number of simultaneously active program alarms  Status block  Status block  Yes; Up to 16 simultaneously  Status/control variable  ● Variables  ● Number of variables, max.  — of which control variables, max.  — of variables, max.	• SNMP	Yes
HTTP Yes; Standard and user-defined pages Further protocols  ● MODBUS  Further protocols  ● MODBUS  Yes; MODBUS TCP  Isochronous mode  Equidistance  Yes  S7 message functions  Number of login stations for message functions, max.  Number of configurable program messages, max.  Number of simultaneously active program alarms  Test commissioning functions  Status block  Yes; Up to 16 simultaneously Status/control variables  No Status/control variables, max.  — of which status variables, max.  — of which control variables, max.	• DCP	Yes
HTTP     Yes; Standard and user-defined pages     Yes; Standard and user-defined pages  Further protocols     MODBUS     Yes; MODBUS TCP  Isochronous mode  Equidistance     Yes  S7 message functions  Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  Number of simultaneously active program alarms  1 0 000  Number of simultaneously active program alarms  Test commissioning functions  Status block     Yes; Up to 16 simultaneously Single step No Status/control  Status/control variable     Variables     Inputs, outputs, memory bits, DB, times, counters  Number of variables, max.     — of which status variables, max.     — of which control varia	• LLDP	Yes
Further protocols  MODBUS  Yes; MODBUS TCP  Sochronous mode  Equidistance  Yes  Yes  Yes  Yes  S7 message functions  Number of login stations for message functions, max. Program alarms  Number of configurable program messages, max. Number of simultaneously active program alarms  1 0000  Test commissioning functions  Status block Yes; Up to 16 simultaneously Single step No  Status/control  Status/control  Status/control variable Variables Number of variables, max. Of which status variables, max. Of which control variables, max. Of which control variables, max. Of which control variables, max. Dof which control v	Web server	
Further protocols  MODBUS  Yes; MODBUS TCP  Sochronous mode  Equidistance  Yes  S7 message functions  Number of login stations for message functions, max.  Program alarms  Yes  Number of configurable program messages, max.  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  Variables  Number of variables, max.  of which status variables, max.  of which control variables, max.  Forcing  Forcing  Forcing  Number of variables, max.  1000  Yes  Up to 16 simultaneously  Yes  Inputs, outputs, memory bits, DB, times, counters  Inputs, outputs, memory bits, DB, times, counters  Forcing  Forcing  Inputs, outputs  Number of variables, max.	• HTTP	Yes; Standard and user-defined pages
Sochronous mode  Equidistance  Yes  S7 message functions  Number of login stations for message functions, max.  Program alarms  Yes  Number of configurable program messages, max.  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  Ves  Number of variables, max.  of which status variables, max.  of which control variables, max.  Forcing  Forcing  Forcing, variables, max.  Number of variables, max.  Inputs, outputs	• HTTPS	Yes; Standard and user-defined pages
Sochronous mode	Further protocols	
Equidistance  Yes  Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  Number of simultaneously active program alarms  1 0000  Test commissioning functions  Status block  Yes; Up to 16 simultaneously  Single step  No  Status/control  Status/control  Status/control variable  Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  200; per job  Forcing  Forcing, variables  Number of variables, max.  Inputs, outputs  Number of variables, max.	• MODBUS	Yes; MODBUS TCP
Equidistance  Yes  Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  Number of simultaneously active program alarms  1 0000  Test commissioning functions  Status block  Yes; Up to 16 simultaneously  Single step  No  Status/control  Status/control  Status/control variable  Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  200; per job  Forcing  Forcing, variables  Number of variables, max.  Inputs, outputs  Number of variables, max.	Isochronous mode	
Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  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  Status/control variable  Ves  Inputs, outputs, memory bits, DB, times, counters  Number of variables, max.  of which status variables, max.  of which control variables, max.  Forcing  Forcing  Inputs, outputs  Inputs, outputs  Inputs, outputs  Inputs, outputs  Inputs, outputs  Inputs, outputs		Yes
Number of login stations for message functions, max.  Program alarms  Number of configurable program messages, max.  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  Status/control variable  Ves  Inputs, outputs, memory bits, DB, times, counters  Number of variables, max.  of which status variables, max.  of which control variables, max.  Forcing  Forcing  Inputs, outputs  Inputs, outputs  Inputs, outputs  Inputs, outputs  Inputs, outputs  Inputs, outputs	S7 message functions	
Number of configurable program messages, max.  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  • Variables  • Number of variables, max.  — of which status variables, max.  — of which control variables, max.  Porcing  • Forcing, variables  • Number of variables, max.  Inputs, outputs  Inputs, outputs  200		32
Number of simultaneously active program alarms  Test commissioning functions  Status block Yes; Up to 16 simultaneously  Single step No  Status/control  Status/control  Status/control variable Variables Inputs, outputs, memory bits, DB, times, counters  Number of variables, max. — of which status variables, max. 200; per job  Forcing  Forcing  Forcing, variables Inputs, outputs 200; per job  Logo per job  Forcing  Prorcing, variables Inputs, outputs 200; per job	Program alarms	Yes
Test commissioning functions  Status block Yes; Up to 16 simultaneously  No  Status/control  Status/control  Status/control variable Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  200; per job  Forcing  Forcing  Forcing, variables Number of variables, max.  Number of variables, max.  200; per job  200; per job	Number of configurable program messages, max.	10 000
Status block  Single step  No  Status/control  Status/control variable  Variables  Number of variables, max.  — of which status variables, max.  — of which control variables, max.  — of which control variables, max.  200; per job  Forcing  Forcing  Forcing  Number of variables, max.  Inputs, outputs, memory bits, DB, times, counters  200; per job  100; per job  200; per job  200; per job  200; per job	Number of simultaneously active program alarms	1 000
Single step  Status/control  Status/control variable  Variables  Inputs, outputs, memory bits, DB, times, counters  Number of variables, max.  of which status variables, max.  of which control variables, max.  Procing  Forcing  Forcing, variables  Number of variables, max.  200; per job  1nputs, outputs  200; per job	Test commissioning functions	
Status/control variable  Status/control variable  Variables  Inputs, outputs, memory bits, DB, times, counters  Number of variables, max.  of which status variables, max.  of which control variables, max.  200; per job  Forcing  Forcing  Inputs, outputs  Inputs, outputs  O	Status block	Yes; Up to 16 simultaneously
<ul> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max.</li> <li>— of which status variables, max.</li> <li>— of which control variables, max.</li> <li>Every per job</li> <li>200; per job</li> <li>Forcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> <li>200</li> </ul>	Single step	No
<ul> <li>Variables</li> <li>Number of variables, max.</li> <li>— of which status variables, max.</li> <li>— of which control variables, max.</li> <li>Forcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> <li>200; per job</li> <li>Inputs, outputs</li> <li>Number of variables, max.</li> <li>200</li> </ul>	Status/control	
<ul> <li>Number of variables, max. <ul> <li>of which status variables, max.</li> <li>of which control variables, max.</li> </ul> </li> <li>Forcing <ul> <li>Forcing, variables</li> <li>Number of variables, max.</li> </ul> </li> <li>Number of variables, max.</li> </ul> <li>200; per job</li> <li>Inputs, outputs</li> <li>200</li>	Status/control variable	Yes
<ul> <li>— of which status variables, max.</li> <li>— of which control variables, max.</li> <li>Forcing</li> <li>• Forcing, variables</li> <li>• Number of variables, max.</li> <li>200; per job</li> <li>Inputs, outputs</li> <li>200</li> </ul>	<ul><li>Variables</li></ul>	Inputs, outputs, memory bits, DB, times, counters
<ul> <li>— of which control variables, max.</li> <li>Forcing</li> <li>● Forcing, variables</li> <li>● Number of variables, max.</li> <li>200; per job</li> <li>Inputs, outputs</li> <li>200</li> </ul>	<ul><li>Number of variables, max.</li></ul>	
Forcing  • Forcing, variables  • Number of variables, max.  Inputs, outputs  200	— of which status variables, max.	200; per job
<ul><li>Forcing, variables</li><li>Number of variables, max.</li><li>Inputs, outputs</li><li>200</li></ul>	— of which control variables, max.	200; per job
• Number of variables, max. 200	Forcing	
	Forcing, variables	Inputs, outputs
Diagnostic buffer	<ul> <li>Number of variables, max.</li> </ul>	200

• present	Yes
<ul> <li>Number of entries, max.</li> </ul>	3 200
<ul><li>of which powerfail-proof</li></ul>	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	
<ul> <li>Connection display LINK TX/RX</li> </ul>	Yes	

Supported technology objects	
Motion Control	Yes
<ul> <li>Speed-controlled axis</li> </ul>	
<ul> <li>Number of speed-controlled axes, max.</li> </ul>	128; Up to 128 axes in total (speed-controlled, positioning axis, external encoders) are supported
<ul> <li>Positioning axis</li> </ul>	
<ul> <li>Number of positioning axes, max.</li> </ul>	128; Up to 128 axes in total (speed-controlled, positioning axis, external encoders) are supported
<ul> <li>External encoders</li> </ul>	
<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	
<ul><li>PID_Compact</li></ul>	Yes; Universal PID controller with integrated optimization
PID_3Step	Yes; PID controller with integrated optimization for valves
Counting and measuring	
High-speed counter	Yes

Ambient conditions		
Ambient temperature during operation		
horizontal installation, min.	0 °C; = Tmin (incl. condensation/frost)	
horizontal installation, max.	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off	
• vertical installation, min.	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		
• min.	-40 °C	
• max.	70 °C	
Altitude during operation relating to sea level		
<ul> <li>Installation altitude above sea level, max.</li> </ul>	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	
<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
<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); $^{\star}$
— to mechanically active substances according to EN 60721-3-3	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.</li> <li>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

Programming		
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	
<ul><li>Protection level: Write protection</li></ul>	Yes	
<ul> <li>Protection level: Read/write protection</li> </ul>	Yes	
<ul> <li>Protection level: Complete protection</li> </ul>	Yes	
Cycle time monitoring		
• lower limit	adjustable minimum cycle time	
• upper limit	adjustable maximum cycle time	
Dimensions		
Width	175 mm	
Height	147 mm	
Depth	129 mm	
Weights		
Weight, approx.	1 988 g	
last modified:	11/28/2020	