Data sheet



SIPLUS ET 200SP CPU 1512SP-1 PN based on 6ES7512-1DK01-0AB0 with conformal coating, -40...+70 °C, no pluggable BusAdapter, central processing unit with work memory 200 KB for program and 1 MB for data, 1st interface, PROFINET IRT with 3-port switch, 48 ns bit performance, SIMATIC Memory Card required,

Figure similar

General information	
Product type designation	CPU 1512SP-1 PN
Product function	
• I&M data	Yes; I&M0 to I&M3
 Module swapping during operation (hot swapping) 	Yes; Multi-hot swapping
• Isochronous mode	Yes; Only with PROFINET; with minimum OB 6x cycle of 625 µs
Engineering with	
 STEP 7 TIA Portal configurable/integrated from version 	see entry ID: 109746275
Configuration control	
via dataset	Yes
Control elements	
Mode selector switch	1
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Mains buffering	
 Mains/voltage failure stored energy time 	5 ms
Input current	
Current consumption (rated value)	0.6 A
Current consumption, max.	0.9 A
Inrush current, max.	4.7 A; Rated value
l²t	0.14 A²·s
Power	
Infeed power to the backplane bus	8.75 W
Power loss	
Power loss, typ.	5.6 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
integrated (for program)	200 kbyte
• integrated (for data)	1 Mbyte
Load memory	
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	
• maintenance-free	Yes
CPU processing times	

for bit operations, typ.	48 ns
for word operations, typ.	58 ns
for fixed point arithmetic, typ.	77 ns
for floating point arithmetic, typ.	307 ns
CPU-blocks	
Number of elements (total)	4 000; Blocks (OB, FB, FC, DB) and UDTs
DB	
Number range	1 60 999; subdivided into: number range that can be used by the user: 1
- Cime many	59 999, and number range of DBs created via SFC 86: 60 000 60 999
• Size, max.	1 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	0 05 505
Number range	0 65 535
• Size, max.	200 kbyte
FC	0 05 505
Number range	0 65 535
• Size, max.	200 kbyte
OB	
• Size, max.	200 kbyte
Number of free cycle OBs	100
Number of time alarm OBs	20
Number of delay alarm OBs	20
 Number of cyclic interrupt OBs 	20; With minimum OB 3x cycle of 500 μs
 Number of process alarm OBs 	50
 Number of DPV1 alarm OBs 	3
 Number of isochronous mode OBs 	1
 Number of technology synchronous alarm OBs 	2
 Number of startup OBs 	100
 Number of asynchronous error OBs 	4
 Number of synchronous error OBs 	2
Number of diagnostic alarm OBs	1
Nesting depth	
per priority class	24
Counters, timers and their retentivity	
S7 counter	
Number	2 048
Retentivity	
— adjustable	Yes
IEC counter	
A1 1	
 Number 	Any (only limited by the main memory)
Number Retentivity	Any (only limited by the main memory)
	Any (only limited by the main memory) Yes
Retentivity	
Retentivity — adjustable	
Retentivity — adjustable S7 times	Yes
Retentivity — adjustable S7 times • Number	Yes
Retentivity — adjustable S7 times • Number Retentivity	Yes 2 048
Retentivity — adjustable S7 times • Number Retentivity — adjustable	Yes 2 048 Yes
Retentivity — adjustable S7 times • Number Retentivity — adjustable IEC timer • Number	Yes 2 048
Retentivity — adjustable S7 times • Number Retentivity — adjustable IEC timer • Number Retentivity	Yes 2 048 Yes
Retentivity — adjustable S7 times • Number Retentivity — adjustable IEC timer • Number Retentivity — adjustable	Yes 2 048 Yes Any (only limited by the main memory)
Retentivity — adjustable S7 times • Number Retentivity — adjustable IEC timer • Number Retentivity — adjustable Data areas and their retentivity	Yes 2 048 Yes Any (only limited by the main memory) Yes
Retentivity — adjustable S7 times • Number Retentivity — adjustable IEC timer • Number Retentivity — adjustable	Yes 2 048 Yes Any (only limited by the main memory)
Retentivity — adjustable S7 times • Number Retentivity — adjustable IEC timer • Number Retentivity — adjustable Data areas and their retentivity	Yes 2 048 Yes Any (only limited by the main memory) Yes 128 kbyte; Available retentive memory for bit memories, timers, counters, DBs,
Retentivity — adjustable S7 times • Number Retentivity — adjustable IEC timer • Number Retentivity — adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max.	Yes 2 048 Yes Any (only limited by the main memory) Yes 128 kbyte; Available retentive memory for bit memories, timers, counters, DBs,
Retentivity — adjustable S7 times • Number Retentivity — adjustable IEC timer • Number Retentivity — adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max.	Yes 2 048 Yes Any (only limited by the main memory) Yes 128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB
Retentivity — adjustable S7 times • Number Retentivity — adjustable IEC timer • Number Retentivity — adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag • Size, max.	Yes 2 048 Yes Any (only limited by the main memory) Yes 128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB 16 kbyte
Retentivity — adjustable S7 times • Number Retentivity — adjustable IEC timer • Number Retentivity — adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag • Size, max. • Number of clock memories Data blocks	Yes 2 048 Yes Any (only limited by the main memory) Yes 128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB 16 kbyte
Retentivity — adjustable S7 times • Number Retentivity — adjustable IEC timer • Number Retentivity — adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag • Size, max. • Number of clock memories Data blocks • Retentivity adjustable	Yes 2 048 Yes Any (only limited by the main memory) Yes 128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB 16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte
Retentivity — adjustable S7 times • Number Retentivity — adjustable IEC timer • Number Retentivity — adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag • Size, max. • Number of clock memories Data blocks	Yes 2 048 Yes Any (only limited by the main memory) Yes 128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB 16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte
Retentivity — adjustable S7 times • Number Retentivity — adjustable IEC timer • Number Retentivity — adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag • Size, max. • Number of clock memories Data blocks • Retentivity adjustable • Retentivity preset	Yes 2 048 Yes Any (only limited by the main memory) Yes 128 kbyte; Available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 88 KB 16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte

Number of IO modules	2 048; max. number of modules / submodules
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)	8 kbyte
— Outputs (volume)	8 kbyte
per CM/CP	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	
 Number of subprocess images, max. 	32
Address space per module	
 Address space per module, max. 	288 byte; For input and output data respectively
Address space per station	
 Address space per station, max. 	2 560 byte; for central inputs and outputs; depending on configuration; 2 048
	bytes for ET 200SP modules + 512 bytes for ET 200AL modules
Hardware configuration	
Number of distributed IO systems	32; A distributed I/O system is characterized not only by the integration of distributed I/O via PROFINET or PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules or links (e.g. IE/PB-Link)
Number of DP masters	
• Via CM	1
Number of IO Controllers	
• integrated	1
• Via CM	0
Rack	
Modules per rack, max.	80; CPU + 64 modules + server module (mounting width max. 1 m) + 16 ET 200AL modules; > 60 °C ambient temperature CPU + 32 modules + server module + 16 ET 200AL modules
 Quantity of operable ET 200SP modules, max. 	64; > 60 °C ambient temperature: 32 modules
 Quantity of operable ET 200AL modules, max. 	16
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
Backup time	6 wk; At 40 °C ambient temperature, typically
 Deviation per day, max. 	10 s; Typ.: 2 s
Operating hours counter	
Number	16
Clock synchronization	
• supported	Yes
• to DP, master	Yes; Via CM DP module
• to DP, slave	Yes: Via CM DP module
• in AS, master	Yes
• in AS, master • in AS, slave	Yes
on Ethernet via NTP	Yes
	165
Interfaces	4
Number of PROFINIET interfaces	1
	4. Via CM DD module
Number of PROFIBUS interfaces	1; Via CM DP module
Optical interface	1; Via CM DP module No
Optical interface 1. Interface	
Optical interface 1. Interface Interface types	
Optical interface 1. Interface	
Optical interface 1. Interface Interface types	No
Optical interface 1. Interface Interface types • RJ 45 (Ethernet)	No Yes; X1 P3
Optical interface 1. Interface Interface types • RJ 45 (Ethernet) • Number of ports	No Yes; X1 P3 1
Optical interface 1. Interface Interface types • RJ 45 (Ethernet) • Number of ports • BusAdapter (PROFINET)	No Yes; X1 P3 1
Optical interface 1. Interface Interface types • RJ 45 (Ethernet) • Number of ports • BusAdapter (PROFINET) Protocols	Yes; X1 P3 1 No

 — IRT — PROFlenergy — Prioritized startup — Number of connectable IO Devices, max. — Of which IO devices with IRT, max. — Number of connectable IO Devices for RT, max. — of which in line, max. — Number of IO Devices that can be simultaneously activated/deactivated, max. — Number of IO Devices per tool, max. — Updating times Yes; per user program Yes; Max. 32 PROFINET 64 128 128 8; in total across all interfa 8 The minimum value of the 	d isochronous mode (MRPD optional) devices tributed I/O devices can be connected via AS-i,
Open IE communication Web server Media redundancy PROFINET IO Controller Services - PG/OP communication - Isochronous mode - Direct data exchange - IRT - PROFlenergy - Prioritized startup - Number of connectable IO Devices, max. - Of which IO devices with IRT, max Number of IO Devices that can be simultaneously activated/deactivated, max Number of IO Devices per tool, max. - Updating times Yes Yes Yes; Requirement: IRT an Yes Yes; per user program Yes; Max. 32 PROFINET 128; In total, up to 512 dist PROFIBUS or PROFINET 64 8; in total across all interface 8 The minimum value of the set for PROFINET IO, on toonfigured user data	d isochronous mode (MRPD optional) devices tributed I/O devices can be connected via AS-i,
 ◆ Web server ◆ Media redundancy PROFINET IO Controller Services — PG/OP communication — Isochronous mode — Direct data exchange — IRT — PROFlenergy — Prioritized startup — Number of connectable IO Devices, max. — Of which IO devices with IRT, max. — Number of connectable IO Devices for RT, max. — Of which in line, max. — Number of IO Devices that can be simultaneously activated/deactivated, max. — Number of IO Devices per tool, max. 8 The minimum value of the set for PROFINET IO, on tangent of the set for PROFINET IO. 	d isochronous mode (MRPD optional) devices tributed I/O devices can be connected via AS-i,
● Media redundancy PROFINET IO Controller Services	devices tributed I/O devices can be connected via AS-i,
Services - PG/OP communication - Isochronous mode - Direct data exchange - IRT - PROFlenergy - Prioritized startup - Number of connectable IO Devices, 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 Updating times - PG/OP communication - Yes - Yes; Requirement: IRT and Yes - Yes; Per user program - Yes; Max. 32 PROFINET of 128; In total, up to 512 dist PROFIBUS or PROFINET - 64 - 128 - 128 - 128 - 8; in total across all interface activated/deactivated, max Number of IO Devices per tool, max Updating times - The minimum value of the set for PROFINET IO, on to configured user data	devices tributed I/O devices can be connected via AS-i,
Services	devices tributed I/O devices can be connected via AS-i,
 — PG/OP communication — Isochronous mode — Direct data exchange — IRT — PROFlenergy — Prioritized startup — Number of connectable IO Devices, max. — Of which IO devices with IRT, max. — Number of connectable IO Devices for RT, max. — Of which in line, max. — Number of IO Devices that can be simultaneously activated/deactivated, max. — Number of IO Devices per tool, max. — Updating times Yes Yes; Requirement: IRT an Yes Heart program Heart program Yes Heart program Hear	devices tributed I/O devices can be connected via AS-i,
 — Isochronous mode — Direct data exchange — IRT — PROFlenergy — Prioritized startup — Number of connectable IO Devices, max. — Of which IO devices with IRT, max. — Number of connectable IO Devices for RT, max. — of which in line, max. — Number of IO Devices that can be simultaneously activated/deactivated, max. — Number of IO Devices per tool, max. — Updating times Yes; Requirement: IRT an Yes Yes; Per user program Yes; Nax. 32 PROFINET 64 128 8; in total, up to 512 districted in the proof INET 8; in total across all interfactivated/deactivated, max. 8 The minimum value of the set for PROFINET IO, on total configured user data 	devices tributed I/O devices can be connected via AS-i,
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 — IRT — PROFlenergy — Prioritized startup — Number of connectable IO Devices, max. — Of which IO devices with IRT, max. — Number of connectable IO Devices for RT, max. — Number of connectable IO Devices for RT, max. — of which in line, max. — Number of IO Devices that can be simultaneously activated/deactivated, max. — Number of IO Devices per tool, max. — Updating times Yes; per user program Yes; Max. 32 PROFINET 64 128 8; in total across all interfactorized in the minimum value of the set for PROFINET IO, on ton figured user data 	devices tributed I/O devices can be connected via AS-i,
 — PROFlenergy — Prioritized startup — Number of connectable IO Devices, max. — Of which IO devices with IRT, max. — Number of connectable IO Devices for RT, max. — of which in line, max. — Number of IO Devices that can be simultaneously activated/deactivated, max. — Number of IO Devices per tool, max. — Updating times Yes; per user program Yes; Max. 32 PROFINET O 128; In total, up to 512 dist PROFINET Number of IO Devices that can be simultaneously 8; in total across all interfa The minimum value of the set for PROFINET IO, on ton figured user data 	tributed I/O devices can be connected via AS-i,
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— Of which IO devices with IRT, max. — Number of connectable IO Devices for RT, max. — of which in line, max. — Number of IO Devices that can be simultaneously activated/deactivated, max. — Number of IO Devices per tool, max. — Updating times PROFIBUS or PROFINET 64 128 8; in total across all interfa 8 The minimum value of the set for PROFINET IO, on toonfigured user data	
 Number of connectable IO Devices for RT, max. of which in line, max. Number of IO Devices that can be simultaneously activated/deactivated, max. Number of IO Devices per tool, max. Updating times 128 8; in total across all interfa 8 The minimum value of the set for PROFINET IO, on toonfigured user data 	ices
 — of which in line, max. — Number of IO Devices that can be simultaneously activated/deactivated, max. — Number of IO Devices per tool, max. — Updating times 8 The minimum value of the set for PROFINET IO, on toonfigured user data 	ices
 Number of IO Devices that can be simultaneously activated/deactivated, max. Number of IO Devices per tool, max. Updating times 8; in total across all interfaces The minimum value of the set for PROFINET IO, on toonfigured user data 	ices
activated/deactivated, max. — Number of IO Devices per tool, max. — Updating times The minimum value of the set for PROFINET IO, on t configured user data	ices
— Updating times The minimum value of the set for PROFINET IO, on t configured user data	
set for PROFINET IO, on t configured user data	
	update time also depends on communication share the number of IO devices, and on the quantity of
	ne case of IRT with isochronous mode, the minimum he isochronous OB is decisive
— for send cycle of 500 μs 500 μs to 8 ms	
— for send cycle of 1 ms 1 ms to 16 ms	
— for send cycle of 2 ms 2 ms to 32 ms	
— for send cycle of 4 ms 4 ms to 64 ms	
 With IRT and parameterization of "odd" send cycles Update time = set "odd" set 875 μs) 	end clock (any multiple of 125 μ s: 375 μ s, 625 μ s 3
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	
Services	
— PG/OP communication Yes	
— Isochronous mode No	
— IRT Yes	
— PROFlenergy Yes; per user program	
— Shared device Yes	
— Number of IO Controllers with shared device, max.	
— activation/deactivation of I-devices Yes; per user program	
— Asset management record Yes; per user program	
2. Interface	
Interface types • RS 485 Yes: Via CM DP module	
Number of ports 1 Protocols	
PROFIBUS DP master Yes	
PROFIBUS DP Illastel PROFIBUS DP slave Yes	
SIMATIC communication Yes	
PROFIBUS DP master	
Number of connections, max. 48; Of which 4 each reserve.	ved for ES and HMI
	tributed I/O devices can be connected via AS-i,
Services	
— PG/OP communication Yes	

— Equidistance	No
Isochronous mode	No
Activation/deactivation of DP slaves	Yes
Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
Autonegotiation	Yes
Autocrossing	Yes
Industrial Ethernet status LED	Yes
RS 485	
Transmission rate, max.	12 Mbit/s
Protocols	
PROFIsafe	No
Number of connections	
 Number of connections, max. 	128; 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 	88
 Number of connections per CP/CM 	32
Number of S7 routing paths	16
Redundancy mode	
H-Sync forwarding	No
Media redundancy	
— Media redundancy	No
— MRP	No
 MRP interconnection, supported 	No
— MRPD	No
SIMATIC communication	
 PG/OP communication 	Yes; encryption with TLS V1.3 pre-selected
S7 routing	Yes
 Data record 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
• UDP	Yes
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; Max. 5 multicast circuits
• DHCP	Yes
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Encryption	Yes; Optional
Web server	
• HTTP	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages
OPC UA	
Runtime license required	Yes; "Small" license required
OPC UA Client	Yes
 Application authentication 	Yes
Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15,
	Basic256Sha256
— User authentication	"anonymous" or by user name & password
— Number of connections, max.	4
 Number of nodes of the client interfaces, recommended max. 	1 000
recommended max.	

 Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_I max. 	300
Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max.	20
Number of elements for one call of OPC_UA_MethodGetHandleList, max.	100
 Number of simultaneous calls of the client instructions for session management, per connection, max. 	1
 Number of simultaneous calls of the client instructions for data access, per connection, max. 	5
 Number of registerable nodes, max. 	5 000
 Number of registerable method calls of OPC_UA_MethodCall, max. 	100
— Number of inputs/outputs when calling OPC_UA_MethodCall, max.	20
OPC UA Server	Yes; Data access (read, write, subscribe), method call, custom address space
 Application authentication 	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
User authentication	"anonymous" or by user name & password
 — GDS support (certificate management) 	Yes
Number of sessions, max.	32
 Number of accessible variables, max. 	50 000
 Number of registerable nodes, max. 	10 000
 Number of subscriptions per session, max. 	20
— Sampling interval, min.	100 ms
— Publishing interval, min.	500 ms
 Number of server methods, max. 	20
 Number of inputs/outputs per server method, max. 	20
 Number of monitored items, recommended max. 	1 000; for 1 s sampling interval and 1 s send interval
 Number of server interfaces, max. 	10 of each "Server interfaces" / "Companion specification" type and 20 of the type "Reference namespace"
 Number of nodes for user-defined server interfaces, max. 	1 000
 Alarms and Conditions 	Yes
 Number of program alarms 	100
Number of alarms for system diagnostics	50
Further protocols	
• MODBUS	Yes; MODBUS TCP
S7 message functions	
Number of login stations for message functions, max.	32
Program alarms	Yes
Number of configurable program messages, max.	5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Number of loadable program messages in RUN, max.	2 500
Number of simultaneously active program alarms	
 Number of program alarms 	600
 Number of alarms for system diagnostics 	100
 Number of alarms for motion technology objects 	80
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 5 engineering systems
Status block	Yes; Up to 8 simultaneously (in total across all ES clients)
Single step	No
Number of breakpoints	8
Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
 Number of variables, max. 	
— of which status variables, max.	200; per job
of which control variables, max.	200; per job
Forcing	
Forcing	Yes

• Forcing, variables	Peripheral inputs/outputs
Number of variables, max.	200
Diagnostic buffer	
• present	Yes
Number of entries, max.	1 000
— of which powerfail-proof	500
Traces	
Number of configurable Traces	4; Up to 512 KB of data per trace are possible
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
 Monitoring of the supply voltage (PWR-LED) 	Yes
Connection display LINK TX/RX	Yes
Supported technology objects	
Motion Control	Yes; Note: The number of technology objects affects the cycle time of the PLC
	program; selection guide via the TIA Selection Tool
 Number of available Motion Control resources for technology objects 	800
Required Motion Control resources	
•	40
— per speed-controlled axis	80
— per positioning axis	160
— per synchronous axis	
— per external encoder	80
— per output cam	20
— per cam track	160
— per probe	40
Positioning axis	
 Number of positioning axes at motion control cycle of 4 ms (typical value) 	5
Number of positioning axes at motion control cycle	10
of 8 ms (typical value)	
Controller	
PID_Compact	Yes; Universal PID controller with integrated optimization
PID_3Step	Yes; PID controller with integrated optimization for valves
PID-Temp	Yes; PID controller with integrated optimization for temperature
Counting and measuring	
High-speed counter	Yes
Ambient conditions	
Ambient temperature during operation	
horizontal installation, min.	-40 °C; = Tmin (incl. condensation/frost)
horizontal installation, max.	70 °C; = Tmax
vertical installation, min.	-40 °C; = Tmin
vertical installation, max.	50 °C; = Tmax
Altitude during operation relating to sea level	
Installation altitude above sea level, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	5 000 m, restrictions for installation distracts 2 500 m, see mandal
With condensation, tested in accordance with IEC 60068-	100 %; RH incl. condensation / frost (no commissioning in bedewed state),
2-38, max.	horizontal installation
Resistance	
Coolants and lubricants	
 Resistant to commercially available coolants and lubricants 	No
Use in stationary industrial systems	
— 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 	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	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
— to biologically active substances according to EN	Yes; Class 6B2 mold, fungal and dry rot spores (excluding fauna)
60721-3-6	

 to chemically active substances according to EN 60721-3-6 	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
 to mechanically active substances according to EN 60721-3-6 	Yes; Class 6S3 incl. sand, dust (with the exception of oil droplets in the air); *
Usage in industrial process technology	
 Against chemically active substances acc. to EN 60654-4 	Yes; Class 3 (excluding trichlorethylene)
 Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 	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	
 Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
 Coatings for printed circuit board assemblies acc. to EN 61086 	Yes; Class 2 for high reliability
 Protection against fouling acc. to EN 60664-3 	Yes; Type 1 protection
 Military testing according to MIL-I-46058C, Amendment 7 	Yes; Discoloration of coating possible during service life
 Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC- CC-830A 	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	
 protection of confidential configuration data 	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
Dimensions	
Width	100 mm
Height	117 mm
Depth	75 mm
Weights	
Weight, approx.	470 g

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