



Figure similar

SIPLUS ET 200SP CPU 1512SP F-1 based on 6ES7512-1SM03-0AB0 with conformal coating -40...+60 °C . central processing unit with work memory 600 KB for program and 2 MB for data, 1st interface: PROFINET IRT with 3-port switch, 25 ns bit performance, SIMATIC Memory Card required, BusAdapter required for port 1 and 2

General information	
Product type designation	CPU 1512SP F-1 PN
Firmware version	
• FW update possible	Yes
based on	<a href="#">6ES7512-1SM03-0AB0</a>
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 500 µs
• SysLog	Yes
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	10 ms
Input current	
Current consumption (rated value)	0.48 A
Current consumption, max.	0.7 A
Inrush current, max.	1.34 A; Rated value
I <sup>2</sup> t	0.3 A <sup>2</sup> ·s
Power	
Infeed power to the backplane bus	8.05 W
Power loss	
Power loss, typ.	3.5 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
• integrated (for program)	600 kbyte
• integrated (for data)	2 Mbyte

<b>Load memory</b>	
• Plug-in (SIMATIC Memory Card), max.	32 Gbyte
<b>Backup</b>	
• maintenance-free	Yes
<b>CPU processing times</b>	
for bit operations, typ.	6 ns
for word operations, typ.	7 ns
for fixed point arithmetic, typ.	9 ns
for floating point arithmetic, typ.	37 ns
<b>CPU-blocks</b>	
Number of elements (total)	4 000; Blocks (OB, FB, FC, DB) and UDTs
<b>DB</b>	
• Number range	1 ... 60 999; subdivided into: number range that can be used by the user: 1 ... 59 999, and number range of DBs created via SFC 86: 60 000 ... 60 999
• Size, max.	2 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
<b>FB</b>	
• Number range	0 ... 65 535
• Size, max.	600 kbyte
<b>FC</b>	
• Number range	0 ... 65 535
• Size, max.	600 kbyte
<b>OB</b>	
• Size, max.	600 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 250 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
<b>Nesting depth</b>	
• per priority class	24; Up to 8 possible for F-blocks
<b>Counters, timers and their retentivity</b>	
<b>S7 counter</b>	
• Number	2 048
<b>Retentivity</b>	
— adjustable	Yes
<b>IEC counter</b>	
• Number	Any (only limited by the main memory)
<b>Retentivity</b>	
— adjustable	Yes
<b>S7 times</b>	
• Number	2 048
<b>Retentivity</b>	
— adjustable	Yes
<b>IEC timer</b>	
• Number	Any (only limited by the main memory)
<b>Retentivity</b>	
— adjustable	Yes
<b>Data areas and their retentivity</b>	
Retentive data area (incl. timers, counters, flags), max.	256 kbyte; in total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 216 KB
<b>Flag</b>	
• Size, max.	16 kbyte

• Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte
<b>Data blocks</b>	
• Retentivity adjustable	Yes
• Retentivity preset	No
<b>Local data</b>	
• per priority class, max.	64 kbyte; max. 16 KB per block
<b>Address area</b>	
Number of IO modules	2 048; max. number of modules / submodules
<b>I/O address area</b>	
• 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
<b>Subprocess images</b>	
• Number of subprocess images, max.	32
<b>Address space per module</b>	
• Address space per module, max.	288 byte; For input and output data respectively
<b>Address space per station</b>	
• 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
<b>Hardware configuration</b>	
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)
<b>Number of DP masters</b>	
• Via CM	1
<b>Number of IO Controllers</b>	
• integrated	1
• Via CM	0
<b>Rack</b>	
• Modules per rack, max.	82; CPU + 64 modules + server module (mounting width max. 1 m) + 16 ET 200AL modules
• Quantity of operable ET 200SP modules, max.	64
• Quantity of operable ET 200AL modules, max.	16
• Number of lines, max.	1
<b>PtP CM</b>	
• Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available slots
<b>Time of day</b>	
<b>Clock</b>	
• Type	Hardware clock
• Backup time	6 wk; At 40 °C ambient temperature, typically
• Deviation per day, max.	10 s; Typ.: 2 s
<b>Operating hours counter</b>	
• Number	16
<b>Clock synchronization</b>	
• supported	Yes
• to DP, master	Yes; Via CM DP module
• on DP, device	Yes; Via CM DP module
• in AS, master	Yes
• in AS, device	Yes
• on Ethernet via NTP	Yes
<b>Interfaces</b>	
Number of PROFINET interfaces	1
Number of PROFIBUS interfaces	1; Via CM DP module
Optical interface	Yes; via BusAdapter

## 1. Interface

Interface types	
• RJ 45 (Ethernet)	Yes; X1 P3; opt. X1 P1 and X1 P2 via BusAdapter BA 2x RJ45
• Number of ports	3; 1. integr. + 2. via BusAdapter
• integrated switch	Yes
• BusAdapter (PROFINET)	Yes
Protocols	
• IP protocol	Yes; IPv4
• PROFINET IO Controller	Yes
• PROFINET IO Device	Yes
• SIMATIC communication	Yes
• Open IE communication	Yes; Optionally also encrypted
• Web server	Yes
• Media redundancy	Yes
PROFINET IO Controller	
Services	
— Isochronous mode	Yes
— Direct data exchange	Yes; Requirement: IRT and isochronous mode (MRPD optional)
— IRT	Yes
— Dynamic Frame Packing (DFP)	Yes
— PROFINergy	Yes; per user program
— Prioritized startup	Yes; Max. 32 PROFINET devices
— Number of connectable IO Devices, max.	128; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
— Of which IO devices with IRT, max.	64
— Number of connectable IO Devices for RT, max.	128
— of which in line, max.	128
— Number of IO Devices that can be simultaneously activated/deactivated, max.	8; in total across all interfaces
— Number of IO Devices per tool, max.	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
— PROFINET Security Class	1
Update time for IRT	
— for send cycle of 250 µs	250 µs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 500 µs of the isochronous OB is decisive
— 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" send clock (any multiple of 125 µs: 375 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	
Services	
— Isochronous mode	No
— IRT	Yes
— Dynamic Frame Packing (DFP)	No
— PROFINergy	Yes; per user program
— Prioritized startup	Yes
— Shared device	Yes
— Number of IO Controllers with shared device, max.	4
— activation/deactivation of I-devices	Yes; per user program
— Asset management record	Yes; per user program
— PROFINET Security Class	SNMP Configuration and DCP Read Only

## 2. Interface

<b>Interface types</b>	
<ul style="list-style-type: none"> <li>• RS 485</li> </ul>	Yes; Via CM DP module
<ul style="list-style-type: none"> <li>• Number of ports</li> </ul>	1
<b>Protocols</b>	
<ul style="list-style-type: none"> <li>• PROFIBUS DP master</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• PROFIBUS DP device</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• SIMATIC communication</li> </ul>	Yes
<b>PROFIBUS DP master</b>	
<ul style="list-style-type: none"> <li>• Number of connections, max.</li> </ul>	48; Of which 4 each reserved for ES and HMI
<ul style="list-style-type: none"> <li>• max. number of DP devices</li> </ul>	125; In total, up to 512 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
<b>Services</b>	
<ul style="list-style-type: none"> <li>— PG/OP communication</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— Equidistance</li> </ul>	No
<ul style="list-style-type: none"> <li>— Isochronous mode</li> </ul>	No
<ul style="list-style-type: none"> <li>— activation/deactivation of DP devices</li> </ul>	Yes
<b>Interface types</b>	
<b>RJ 45 (Ethernet)</b>	
<ul style="list-style-type: none"> <li>• 100 Mbps</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Autonegotiation</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Autocrossing</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Industrial Ethernet status LED</li> </ul>	Yes
<b>RS 485</b>	
<ul style="list-style-type: none"> <li>• Transmission rate, max.</li> </ul>	12 Mbit/s
<b>Protocols</b>	
PROFIsafe	Yes; V2.4 / V2.6
<b>Number of connections</b>	
<ul style="list-style-type: none"> <li>• Number of connections, max.</li> </ul>	128; via integrated interfaces of the CPU and connected CPs / CMs
<ul style="list-style-type: none"> <li>• Number of connections reserved for ES/HMI/web</li> </ul>	10
<ul style="list-style-type: none"> <li>• Number of connections via integrated interfaces</li> </ul>	88
<ul style="list-style-type: none"> <li>• Number of connections per CP/CM</li> </ul>	32
<ul style="list-style-type: none"> <li>• Number of S7 routing paths</li> </ul>	16
<b>Redundancy mode</b>	
<ul style="list-style-type: none"> <li>• PROFINET system redundancy (S2)</li> </ul>	No
<ul style="list-style-type: none"> <li>• PROFINET system redundancy (R1)</li> </ul>	No
<ul style="list-style-type: none"> <li>• H-Sync forwarding</li> </ul>	Yes
<b>Media redundancy</b>	
<ul style="list-style-type: none"> <li>— Media redundancy</li> </ul>	Yes; only via BusAdapter
<ul style="list-style-type: none"> <li>— MRP</li> </ul>	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client
<ul style="list-style-type: none"> <li>— MRP interconnection, supported</li> </ul>	Yes; as MRP ring node according to IEC 62439-2 Edition 3.0
<ul style="list-style-type: none"> <li>— MRPD</li> </ul>	Yes; Requirement: IRT
<ul style="list-style-type: none"> <li>— Switchover time on line break, typ.</li> </ul>	200 ms; For MRP, bumpless for MRPD
<ul style="list-style-type: none"> <li>— Number of stations in the ring, max.</li> </ul>	50
<b>SIMATIC communication</b>	
<ul style="list-style-type: none"> <li>• PG/OP communication</li> </ul>	Yes; encryption with TLS V1.3 pre-selected
<ul style="list-style-type: none"> <li>• S7 routing</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Data record routing</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• S7 communication, as server</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• S7 communication, as client</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• User data per job, max.</li> </ul>	See online help (S7 communication, user data size)
<b>Open IE communication</b>	
<ul style="list-style-type: none"> <li>• TCP/IP</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— Data length, max.</li> </ul>	64 kbyte
<ul style="list-style-type: none"> <li>— several passive connections per port, supported</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• ISO-on-TCP (RFC1006)</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— Data length, max.</li> </ul>	64 kbyte
<ul style="list-style-type: none"> <li>• UDP</li> </ul>	Yes

— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; max. 78 multicast circuits
• DHCP	Yes
• DNS	Yes
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
• Encryption	Yes; Optional
<b>Web server</b>	
• HTTP	Yes; Standard and user pages
• HTTPS	Yes; Standard and user pages
• web API	
— Number of sessions, max.	50
— number of simultaneous HTTP calls, max.	4
— HTTP request body, max.	131 072 byte
<b>OPC UA</b>	
• Runtime license required	Yes; "Small" license required
• OPC UA Client	Yes; Data Access (registered Read/Write), Method Call
— 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
— Number of elements for one call of OPC-UA-NodeGetHandleList/OPC-UA-ReadList/OPC-UA-WriteList, 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, alarms & condition (A&C), custom address space, role-based access control
— Application authentication	Yes
— Security policies	available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256, Aes128Sha256RsaOaep, Aes256Sha256RsaPss
— 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.	50
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
— Number of server methods, max.	20; max. 20 concurrently running jobs each for asynchronous instructions OPC-UA-ServerMethodPre and OPC-UA-ServerMethodPost
— Number of inputs/outputs per server method, max.	20
— Number of monitored items, recommended max.	4 000; 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.	15 000
• Alarms and Conditions	Yes

— Number of program alarms	100
— Number of alarms for system diagnostics	50
<b>Further protocols</b>	
• MODBUS	Yes; MODBUS TCP
<b>S7 message functions</b>	
Number of login stations for message functions, max.	32
number of subscriptions, max.	250
number of tags/attributes for subscriptions, max.	2 000
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.	5 000
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	160
<b>Test commissioning functions</b>	
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	Yes
Number of breakpoints	8
Profiling	Yes
<b>Status/control</b>	
• Status/control variable	Yes; without fail-safe
• Variables	inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters
• Number of variables, max.	
— of which status variables, max.	200; per job
— of which control variables, max.	200; per job
<b>Forcing</b>	
• Forcing	Yes; without fail-safe
• Forcing, variables	peripheral inputs/outputs (without fail-safe)
• Number of variables, max.	200
<b>Diagnostic buffer</b>	
• present	Yes
• Number of entries, max.	1 000
— of which powerfail-proof	500
<b>Traces</b>	
• Number of configurable Traces	4
• Memory size per trace, max.	512 kbyte
<b>Interrupts/diagnostics/status information</b>	
<b>Diagnostics indication LED</b>	
• RUN/STOP LED	Yes
• ERROR LED	Yes
• MAINT LED	Yes
• Monitoring of the supply voltage (PWR-LED)	Yes
• Connection display LINK TX/RX	Yes
<b>Supported technology objects</b>	
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	1 120
• Required Motion Control resources	
— per speed-controlled axis	40
— per positioning axis	80
— per synchronous axis	160
— per external encoder	80
— per output cam	20
— per cam track	160
— per probe	40

<ul style="list-style-type: none"> <li>Positioning axis <ul style="list-style-type: none"> <li>Number of positioning axes at motion control cycle of 4 ms (typical value)</li> <li>Number of positioning axes at motion control cycle of 8 ms (typical value)</li> </ul> </li> </ul>	<p>11</p> <p>14</p>
<b>Controller</b> <ul style="list-style-type: none"> <li>PID_Compact</li> <li>PID_3Step</li> <li>PID-Temp</li> </ul>	<p>Yes; Universal PID controller with integrated optimization</p> <p>Yes; PID controller with integrated optimization for valves</p> <p>Yes; PID controller with integrated optimization for temperature</p>
<b>Counting and measuring</b> <ul style="list-style-type: none"> <li>High-speed counter</li> </ul>	<p>Yes</p>
<b>Standards, approvals, certificates</b>	
<b>Ecological footprint</b>	
<ul style="list-style-type: none"> <li>environmental product declaration</li> </ul>	<p>Yes</p>
<b>Global warming potential</b>	
<ul style="list-style-type: none"> <li>global warming potential, (total) [CO2 eq]</li> <li>global warming potential, (during production) [CO2 eq]</li> <li>global warming potential, (during operation) [CO2 eq]</li> <li>global warming potential, (after end of life cycle) [CO2 eq]</li> </ul>	<p>83.2 kg</p> <p>22.3 kg</p> <p>61.8 kg</p> <p>-0.949 kg</p>
<b>Highest safety class achievable in safety mode</b>	
<ul style="list-style-type: none"> <li>Performance level according to ISO 13849-1</li> <li>SIL acc. to IEC 61508</li> </ul>	<p>PLe</p> <p>SIL 3</p>
<b>Probability of failure (for service life of 20 years and repair time of 100 hours)</b>	
<ul style="list-style-type: none"> <li>Low demand mode: PFDavg in accordance with SIL3</li> <li>High demand/continuous mode: PFH in accordance with SIL3</li> </ul>	<p>&lt; 2.00E-05</p> <p>&lt; 1.00E-09</p>
<b>Security</b>	
PROFINET Security Class	1
signed firmware update	Yes
Secure Boot	Yes
safely removing data	Yes
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
<ul style="list-style-type: none"> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> </ul>	<p>-40 °C; = Tmin (incl. condensation/frost)</p> <p>60 °C; = Tmax</p> <p>-40 °C; = Tmin</p> <p>50 °C; = Tmax</p>
<b>Altitude during operation relating to sea level</b>	
<ul style="list-style-type: none"> <li>Installation altitude above sea level, max.</li> </ul>	<p>5 000 m; Restrictions for installation altitudes &gt; 2 000 m, see manual</p>
<b>Relative humidity</b>	
<ul style="list-style-type: none"> <li>With condensation, tested in accordance with IEC 60068-2-38, max.</li> </ul>	<p>100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation</p>
<b>Resistance</b>	
<b>Coolants and lubricants</b>	
<ul style="list-style-type: none"> <li>Resistant to commercially available coolants and lubricants</li> </ul>	<p>Yes; Incl. diesel and oil droplets in the air</p>
<b>Use in stationary industrial systems</b>	
<ul style="list-style-type: none"> <li>to biologically active substances according to EN 60721-3-3</li> <li>to chemically active substances according to EN 60721-3-3</li> <li>to mechanically active substances according to EN 60721-3-3</li> <li>Against mechanical environmental conditions acc. to EN 60721-3-3</li> </ul>	<p>Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request</p> <p>Yes; Class 3C4 (RH &lt; 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *</p> <p>Yes; Class 3S4 incl. sand, dust, *</p> <p>Yes; Class 3M8 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0/6AG1193-6AB00-0AA0)</p>
<b>Use on ships/at sea</b>	
<ul style="list-style-type: none"> <li>to biologically active substances according to EN 60721-3-6</li> <li>to chemically active substances according to EN</li> </ul>	<p>Yes; Class 6B2 mold, fungal and dry rot spores (excluding fauna)</p> <p>Yes; Class 6C3 (RH &lt; 75 %) incl. salt spray acc. to EN 60068-2-52 (severity</p>

60721-3-6 — to mechanically active substances according to EN 60721-3-6 — Against mechanical environmental conditions acc. to EN 60721-3-6	degree 3); * Yes; Class 6S3 incl. sand, dust; *  Yes; class 6M4 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0/6AG1193-6AB00-0AA0)	
<b>Usage in industrial process technology</b>		
— Against chemically active substances acc. to EN 60654-4 — Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Class 3 (excluding trichlorethylene)  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)	
<b>Remark</b>		
— 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!	
<b>Conformal coating</b>		
<ul style="list-style-type: none"> <li>• Coatings for printed circuit board assemblies acc. to EN 61086</li> <li>• Protection against fouling acc. to EN 60664-3</li> <li>• Military testing according to MIL-I-46058C, Amendment 7</li> <li>• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A</li> </ul>	Yes; Class 2 for high reliability  Yes; Type 1 protection  Yes; Discoloration of coating possible during service life  Yes; Conformal coating, Class A	
<b>Configuration</b>		
<b>Programming</b>		
<b>Programming language</b>		
— LAD	Yes; incl. failsafe	
— FBD	Yes; incl. failsafe	
— STL	Yes	
— SCL	Yes	
— GRAPH	Yes	
<b>Know-how protection</b>		
<ul style="list-style-type: none"> <li>• User program protection/password protection</li> <li>• Copy protection</li> <li>• Block protection</li> </ul>	Yes Yes Yes	
<b>Access protection</b>		
<ul style="list-style-type: none"> <li>• protection of confidential configuration data</li> <li>• Protection level: Write protection</li> <li>• Protection level: Read/write protection</li> <li>• Protection level: Write protection for Failsafe</li> <li>• Protection level: Complete protection</li> <li>• User administration</li> <li>• Number of users</li> <li>• Number of groups</li> <li>• Number of roles</li> </ul>	Yes Yes Yes Yes Yes Yes; device-wide and centralized 100 100 50	
<b>Cycle time monitoring</b>		
<ul style="list-style-type: none"> <li>• lower limit</li> <li>• upper limit</li> </ul>	adjustable minimum cycle time adjustable maximum cycle time	
<b>Dimensions</b>		
Width	100 mm	
Height	117 mm	
Depth	75 mm	
<b>Weights</b>		
Weight, approx.	265 g	
<b>Classifications</b>		
	<b>Version</b>	<b>Classification</b>
eClass	14	27-24-26-07
eClass	12	27-24-26-07
eClass	9.1	27-24-26-07
eClass	9	27-24-26-07

eClass	8	27-24-26-07
eClass	7.1	27-24-26-07
eClass	6	27-24-26-07
ETIM	10	EC001603
ETIM	9	EC001603
ETIM	8	EC001603
ETIM	7	EC001603
IDEA	4	3565
UNSPSC	15	32-15-17-05

**Approvals / Certificates**

**General Product Approval**

[Manufacturer Declaration](#)



[China RoHS](#)



**General Product Approval**

**For use in hazardous locations**

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**For use in hazardous locations**

**Functional Safety**

**Maritime application**

**Environment**

[CCC-Ex](#)

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