



Figure similar

SIPLUS S7-1500 CPU 1516F-3 PN rail based on 6ES7516-3FP03-0AB0 with conformal coating OT4: -40...+70 °C ST1/2: 85 °C for 10 minutes . central processing unit with work memory 3 MB for program and 7.5 MB for data 1st interface: PROFINET IRT with 2-port switch, 2nd interface: PROFINET RT, 3rd interface: PROFIBUS, 6 ns bit performance, SIMATIC Memory Card required

| General information | |
|--|---|
| Product type designation | CPU 1516F-3 PN/DP |
| Firmware version | |
| • FW update possible | Yes |
| based on | 6ES7516-3FP03-0AB0 |
| Product function | |
| • I&M data | Yes; I&M0 to I&M3 |
| • Isochronous mode | Yes; Distributed and central; with minimum OB 6x cycle of 375 µs (distributed) and 1 ms (central) |
| • SysLog | Yes |
| Engineering with | |
| • STEP 7 TIA Portal configurable/integrated from version | see entry ID: 109746275 |
| Configuration control | |
| via dataset | Yes |
| Display | |
| Screen diagonal [cm] | 6.1 cm |
| Control elements | |
| Number of keys | 8 |
| Mode buttons | 2 |
| 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 |
| • Repeat rate, min. | 1/s |
| Input current | |
| Current consumption (rated value) | 0.87 A |
| Current consumption, max. | 1.08 A |
| Inrush current, max. | 1.15 A; Rated value |
| I ² t | 0.6 A ² ·s |
| Power | |
| Infeed power to the backplane bus | 12 W |
| Power consumption from the backplane bus (balanced) | 6.7 W |
| Power loss | |
| Power loss, typ. | 4 W |
| Memory | |

| | |
|---|---|
| Number of slots for SIMATIC memory card | 1 |
| SIMATIC memory card required | Yes |
| Work memory | |
| • integrated (for program) | 3 Mbyte |
| • integrated (for data) | 7.5 Mbyte |
| Load memory | |
| • Plug-in (SIMATIC Memory Card), max. | 32 Gbyte |
| Backup | |
| • maintenance-free | Yes |
| CPU processing times | |
| 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 |
| CPU-blocks | |
| Number of elements (total) | 8 000; 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 ... 59 999, and number range of DBs created via SFC 86: 60 000 ... 60 999 |
| • Size, max. | 7.5 Mbyte; For DBs with absolute addressing, the max. size is 64 KB |
| FB | |
| • Number range | 0 ... 65 535 |
| • Size, max. | 1 Mbyte |
| FC | |
| • Number range | 0 ... 65 535 |
| • Size, max. | 1 Mbyte |
| OB | |
| • Size, max. | 1 Mbyte |
| • 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 | 3 |
| • 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; Up to 8 possible for F-blocks |
| Counters, timers and their retentivity | |
| S7 counter | |
| • Number | 2 048 |
| Retentivity | |
| — adjustable | Yes |
| IEC counter | |
| • Number | Any (only limited by the main memory) |
| Retentivity | |
| — adjustable | Yes |
| S7 times | |
| • Number | 2 048 |
| Retentivity | |
| — adjustable | Yes |
| IEC timer | |
| • Number | Any (only limited by the main memory) |
| Retentivity | |
| — adjustable | Yes |

| Data areas and their retentivity | |
|--|---|
| Retentive data area (incl. timers, counters, flags), max. | 512 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 472 KB |
| Extended retentive data area (incl. timers, counters, flags), max. | 7.5 Mbyte; When using PS 6 0W 24/48/60 V DC HF |
| Flag | |
| • Size, max. | 16 kbyte |
| • Number of clock memories | 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; 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 |
| Hardware configuration | |
| Number of distributed IO systems | 64; 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 | |
| • integrated | 1 |
| • Via CM | 8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total |
| Number of IO Controllers | |
| • integrated | 2 |
| • 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 |
| • 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 |
| • on DP, device | Yes; via PROFIBUS CM / CP |
| • in AS, master | Yes |
| • in AS, device | Yes |
| • on Ethernet via NTP | Yes |
| Interfaces | |
| Number of PROFINET interfaces | 2 |
| Number of PROFIBUS interfaces | 1 |

1. Interface

| Interface types | |
|---|--|
| • RJ 45 (Ethernet) | Yes; X1 |
| • Number of ports | 2 |
| • integrated switch | 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 |
| — PROFlenergy | Yes; per user program |
| — Prioritized startup | Yes; Max. 32 PROFINET devices |
| — Number of connectable IO Devices, max. | 256; in total, up to 1024 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. | 256 |
| — of which in line, max. | 256 |
| — 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 375 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 |
| — PROFlenergy | Yes; per user program |
| — 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 | |
| Interface types | |
| • RJ 45 (Ethernet) | Yes; X2 |
| • Number of ports | 1 |

| | |
|---|--|
| • integrated switch | No |
| 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 | No |
| PROFINET IO Controller | |
| Services | |
| — Isochronous mode | No |
| — Direct data exchange | No |
| — IRT | No |
| — PROFINergy | Yes; per user program |
| — Prioritized startup | No |
| — Number of connectable IO Devices, max. | 32; in total, up to 1024 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET |
| — Number of connectable IO Devices for RT, max. | 32 |
| — of which in line, max. | 32 |
| — 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 RT | |
| — for send cycle of 1 ms | 1 ms to 512 ms |
| PROFINET IO Device | |
| Services | |
| — Isochronous mode | No |
| — IRT | No |
| — PROFINergy | Yes; per user program |
| — Prioritized startup | No |
| — 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 |
| 3. Interface | |
| Interface types | |
| • RS 485 | Yes; X3 |
| • Number of ports | 1 |
| Protocols | |
| • PROFIBUS DP master | Yes |
| • PROFIBUS DP device | No |
| • SIMATIC communication | Yes |
| PROFIBUS DP master | |
| • Number of connections, max. | 48; for the integrated PROFIBUS DP interface |
| • max. number of DP devices | 125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET |
| Services | |
| — Equidistance | Yes |
| — Isochronous mode | Yes |
| — activation/deactivation of DP devices | 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 | Yes; V2.4 / V2.6 |
| Number of connections | |
| • Number of connections, max. | 256; 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 | 128 |
| • Number of S7 routing paths | 16 |
| Redundancy mode | |
| • H-Sync forwarding | Yes |
| Media redundancy | |
| — Media redundancy | only via 1st interface (X1) |
| — MRP | Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client |
| — MRP interconnection, supported | Yes; as MRP ring node according to IEC 62439-2 Edition 3.0 |
| — MRPD | Yes; Requirement: IRT |
| — Switchover time on line break, typ. | 200 ms; For MRP, bumpless for MRPD |
| — Number of stations in the ring, max. | 50 |
| 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. 118 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 |
| • web API | |
| — Number of sessions, max. | 100 |
| — number of simultaneous HTTP calls, max. | 4 |
| — HTTP request body, max. | 131 072 byte |
| OPC UA | |
| • Runtime license required | Yes; "Medium" 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. | 10 |
| — Number of nodes of the client interfaces, recommended max. | 2 000 |

| | |
|--|---|
| — 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. | 48 |
| — Number of accessible variables, max. | 100 000 |
| — Number of registerable nodes, max. | 20 000 |
| — Number of subscriptions per session, max. | 50 |
| — Sampling interval, min. | 100 ms |
| — Publishing interval, min. | 100 ms |
| — Number of server methods, max. | 50; 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. | 30 000 |
| ● Alarms and Conditions | Yes |
| — Number of program alarms | 200 |
| — Number of alarms for system diagnostics | 100 |
| Further protocols | |
| ● MODBUS | Yes; MODBUS TCP |
| Isochronous mode | |
| Equidistance | Yes |
| S7 message functions | |
| Number of login stations for message functions, max. | 64 |
| number of subscriptions, max. | 500 |
| number of tags/attributes for subscriptions, max. | 8 000 |
| Program alarms | Yes |
| Number of configurable program messages, max. | 10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH |
| Number of loadable program messages in RUN, max. | 10 000 |
| Number of simultaneously active program alarms | |
| ● Number of program alarms | 1 000 |
| ● Number of alarms for system diagnostics | 200 |
| ● Number of alarms for motion technology objects | 160 |
| Test commissioning functions | |
| Joint commission (Team Engineering) | Yes; Parallel online access possible for up to 8 engineering systems |
| Status block | Yes; Up to 8 simultaneously (in total across all ES clients) |
| Single step | No |
| Number of breakpoints | 8 |
| Profiling | Yes |

| | |
|---|---|
| Status/control | |
| <ul style="list-style-type: none"> • Status/control variable • Variables • Number of variables, max. <ul style="list-style-type: none"> — of which status variables, max. — of which control variables, max. | <p>Yes; without fail-safe</p> <p>inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters</p> <p>200; per job</p> <p>200; per job</p> |
| Forcing | |
| <ul style="list-style-type: none"> • Forcing • Forcing, variables • Number of variables, max. | <p>Yes; without fail-safe</p> <p>peripheral inputs/outputs (without fail-safe)</p> <p>200</p> |
| Diagnostic buffer | |
| <ul style="list-style-type: none"> • present • Number of entries, max. <ul style="list-style-type: none"> — of which powerfail-proof | <p>Yes</p> <p>3 200</p> <p>500</p> |
| Traces | |
| <ul style="list-style-type: none"> • Number of configurable Traces • Memory size per trace, max. | <p>4</p> <p>512 kbyte</p> |
| Interrupts/diagnostics/status information | |
| Diagnostics indication LED | |
| <ul style="list-style-type: none"> • RUN/STOP LED • ERROR LED • MAINT LED • STOP ACTIVE LED • Connection display LINK TX/RX | <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> |
| Supported technology objects | |
| <p>Motion Control</p> <ul style="list-style-type: none"> • Number of available Motion Control resources for technology objects • Required Motion Control resources <ul style="list-style-type: none"> — per speed-controlled axis — per positioning axis — per synchronous axis — per external encoder — per output cam — per cam track — per probe • Positioning axis <ul style="list-style-type: none"> — Number of positioning axes at motion control cycle of 4 ms (typical value) — Number of positioning axes at motion control cycle of 8 ms (typical value) | <p>Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool</p> <p>2 400</p> <p>40</p> <p>80</p> <p>160</p> <p>80</p> <p>20</p> <p>160</p> <p>40</p> <p>11</p> <p>20</p> |
| <p>Controller</p> <ul style="list-style-type: none"> • PID_Compact • PID_3Step • PID-Temp | <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> |
| <p>Counting and measuring</p> <ul style="list-style-type: none"> • High-speed counter | <p>Yes</p> |
| Isolation | |
| <p>Isolation tested with</p> | <p>750 V DC (type test) and according to EN 50155 (routine test); internal voltage limitation between internal chassis and ground to ± 300 V (varistor)</p> |
| Standards, approvals, certificates | |
| Ecological footprint | |
| <ul style="list-style-type: none"> • environmental product declaration | <p>Yes</p> |
| Global warming potential | |
| <ul style="list-style-type: none"> — global warming potential, (total) [CO₂ eq] — global warming potential, (during production) [CO₂ eq] — global warming potential, (during operation) [CO₂ eq] | <p>102 kg</p> <p>26.5 kg</p> <p>76.7 kg</p> |

| | |
|--|---|
| — global warming potential, (after end of life cycle) [CO2 eq] | -0.898 kg |
| Highest safety class achievable in safety mode | |
| <ul style="list-style-type: none"> • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508 • SIL in accordance with EN 50126, 50128, 50129 | <p>PLe</p> <p>SIL 3</p> <p>SIL 2; a higher safety integrity level is possible if tested and approved for the specific application under consideration of all local regulations.</p> |
| Probability of failure (for service life of 20 years and repair time of 100 hours) | |
| — Low demand mode: PFDavg in accordance with SIL3 | < 2.00E-05 |
| — High demand/continuous mode: PFH in accordance with SIL3 | < 1.00E-09 |
| Railway application | |
| <ul style="list-style-type: none"> • EN 50121-3-2 • EN 50121-4 • EN 50121-5 • EN 50124-1 • EN 50125-1 • EN 50125-2 • EN 50125-3 • EN 50155 • EN 61373 • Fire protection acc. to EN 45545-2 | <p>Yes; EMC for rail vehicles</p> <p>Yes; EMC for signal and telecommunications systems</p> <p>Yes; EMC for fixed installations and railway power supply equipment</p> <p>Yes; Railway applications - overvoltage category OV2; pollution degree PD2; rated surge voltage UNi = 0.5 kV; UNm = 24 V DC</p> <p>Yes; Rail vehicles - see ambient conditions</p> <p>Yes; Stationary electrical equipment - see ambient conditions</p> <p>Yes; Signal and telecommunications systems - see ambient conditions; vibrations and shocks: Application point outside of tracks (1 m to 3 m away from track)</p> <p>Yes; Rail vehicles - temperature class OT4, ST1/ST2, horizontal mounting position</p> <p>Yes; Rail vehicles - vibrations and shocks: Category 1 Class A/B</p> <p>Yes; For proof of conformity, see Service & Support</p> |
| Ambient conditions | |
| Ambient temperature during operation | |
| <ul style="list-style-type: none"> • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. | <p>-40 °C; = Tmin (incl. condensation/frost)</p> <p>70 °C; = Tmax; +85 °C for 10 min (OT4, ST1/ST2 acc. to EN 50155); display: 50 °C, the display is switched off at an operating temperature of typically 50 °C</p> <p>-40 °C; = Tmin</p> <p>40 °C; = Tmax; display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off</p> |
| Ambient temperature during storage/transportation | |
| <ul style="list-style-type: none"> • min. • max. | <p>-40 °C</p> <p>70 °C</p> |
| Altitude during operation relating to sea level | |
| <ul style="list-style-type: none"> • Installation altitude above sea level, max. • Ambient air temperature-barometric pressure-altitude | <p>2 000 m</p> <p>Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)</p> |
| Relative humidity | |
| <ul style="list-style-type: none"> • With condensation, tested in accordance with IEC 60068-2-38, max. | 100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation |
| Resistance | |
| Coolants and lubricants | |
| — Resistant to commercially available coolants and lubricants | Yes; Incl. diesel and oil droplets in the air |
| 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 land craft, rail vehicles and special-purpose vehicles | |
| — to biologically active substances according to EN 60721-3-5 | Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request |
| — to chemically active substances according to EN 60721-3-5 | Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * |
| — to mechanically active substances according to EN 60721-3-5 | Yes; Class 5S3 incl. sand, dust; * |
| Usage in industrial process technology | |
| — Against chemically active substances acc. to EN | Yes; Class 3 (excluding trichlorethylene) |

60654-4

— 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
- Protection against fouling acc. to EN 60664-3
- Electronic equipment on rolling stock acc. to EN 50155
- Military testing according to MIL-I-46058C, Amendment 7
- Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A

Yes; Class 2 for high reliability

Yes; Type 1 protection

Yes; class PC2 protective coating acc. to EN 50155

Yes; Discoloration of coating possible during service life

Yes; Conformal coating, Class A

Configuration

Programming

Programming language

- LAD
- FBD
- STL
- SCL
- CFC
- GRAPH

Yes; incl. failsafe
Yes; incl. failsafe
Yes
Yes
Yes; either CFC or failsafe functionality
Yes

Know-how protection

- User program protection/password protection
- Copy protection
- Block protection

Yes
Yes
Yes

Access protection

- protection of confidential configuration data
- Password for display
- Protection level: Write protection
- Protection level: Read/write protection
- Protection level: Write protection for Failsafe
- Protection level: Complete protection
- User administration
- Number of users
- Number of groups
- Number of roles

Yes
Yes
Yes
Yes
Yes
Yes
Yes; device-wide and centralized
100
100
50

Cycle time monitoring

- lower limit
- upper limit

adjustable minimum cycle time
adjustable maximum cycle time

Dimensions

- Width
- Height
- Depth

70 mm
147 mm
129 mm

Weights

Weight, approx.

545 g

Other

Note:

for use in railway applications, also observe the product information "SIPLUS extreme RAIL" A5E37661960A, Online Support article 109736776

Classifications

| | Version | Classification |
|--------|---------|----------------|
| eClass | 14 | 27-24-22-07 |
| 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 |

| | | |
|--------|-----|-------------|
| eClass | 7.1 | 27-24-22-07 |
| eClass | 6 | 27-24-22-07 |
| ETIM | 10 | EC000236 |
| ETIM | 9 | EC000236 |
| ETIM | 8 | EC000236 |
| ETIM | 7 | EC000236 |
| IDEA | 4 | 3565 |
| UNSPSC | 15 | 32-15-17-05 |

Approvals / Certificates

General Product Approval



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| | | | | |
|--------------------------|-----|-------------------|---------|-------------|
| General Product Approval | EMV | Functional Safety | Railway | Environment |
|--------------------------|-----|-------------------|---------|-------------|

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