



Figure similar

SIMATIC ET 200SP Open Controller, CPU 1515SP PC2 F, 8 GB RAM (basic device 6ES7677-2DB40-0AA0), 128 GB CFast with SIMATIC Industrial OS V3.x and S7-1500 Failsafe Software Controller CPU 1505SP F V3x preinstalled; interfaces: 1x slot CFast, 1x slot SD/MMC, 1x connection for ET 200SP BusAdapter PROFINET, 1x 10/100/1000 Mbps Ethernet, 2x USB 3.0, 2x USB 2.0, 1x DisplayPort; documentation on CFast, restore image on SIOS

| General information  |   |
|--|---|
| Product type designation   | CPU1515SP PC2 F - IndOS   |
| Firmware version   | V30.1   |
| Product function   |   |
| <ul style="list-style-type: none"> <li>I&amp;M data</li> <li>Isochronous mode</li> <li>SysLog</li> </ul> | Yes; I&M0 to I&M3<br>Yes; only with PROFINET; with minimum OB 6x cycle of 500 µs<br>Yes |
| Engineering with   |   |
| <ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul> | V19   |
| Installed software   |   |
| <ul style="list-style-type: none"> <li>Visualization</li> <li>Control</li> </ul>                         | No<br>S7-1500 Software Controller CPU 1505SP F  |
| 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  |   |
| <ul style="list-style-type: none"> <li>Mains/voltage failure stored energy time</li> </ul>               | 5 ms  |
| Input current  |   |
| Current consumption (rated value)  | 1.8 A; Full processor load, incl. ET 200SP modules and using USB                        |
| Current consumption (in no-load operation), typ.   | 0.5 A   |
| Current consumption, max.  | 2.9 A   |
| I <sup>2</sup> t   | 0.426 A <sup>2</sup> ·s; with starting current inrush                                   |
| Power  |   |
| Active power input, max.   | 43 W; incl. ET 200SP modules and using USB  |
| Infeed power to the backplane bus  | 8.75 W  |
| Power loss   |   |
| Power loss, typ.   | 16 W  |
| Processor  |   |
| Processor type   | Intel Atom E3940, 1.6 GHz, 4 cores  |
| Memory   |   |
| Type of memory   | DDR3L   |
| Main memory  | 8 GB RAM  |
| CFast memory card  | Yes; 128 GB flash memory  |

|   |   |
|---|---|
| SIMATIC memory card required                              | No  |
| <b>Work memory</b>  |   |
| • integrated (for program)                                | 3 Mbyte   |
| • integrated (for data)                                   | 7.5 Mbyte   |
| • integrated (for CPU function library of CPU Runtime)    | 20 Mbyte  |
| <b>Load memory</b>  |   |
| • integrated (on PC mass storage)                         | 320 Mbyte   |
| <b>Backup</b>   |   |
| • with UPS  | Yes; all memory areas declared retentive  |
| • with non-volatile memory                                | Yes   |
| <b>CPU-blocks</b>   |   |
| Number of elements (total)                                | 8 000; In addition to blocks such as DBs, FBs and FCs, UDTs, global constants, etc. are also regarded as elements |
| <b>DB</b>   |   |
| • Number, max.  | 7 999; Number range: 1 to 65535   |
| • Size, max.  | 5 Mbyte   |
| <b>FB</b>   |   |
| • Number, max.  | 7 998; Number range: 1 to 65535   |
| • Size, max.  | 1 024 kbyte   |
| <b>FC</b>   |   |
| • Number, max.  | 7 999; Number range: 1 to 65535   |
| • Size, max.  | 1 024 kbyte   |
| <b>OB</b>   |   |
| • Size, max.  | 1 024 kbyte   |
| • Number of free cycle OBs                                | 100   |
| • Number of time alarm OBs                                | 20  |
| • Number of delay alarm OBs                               | 20  |
| • Number of cyclic interrupt OBs                          | 20  |
| • Number of 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   |
| Retentivity   |   |
| — adjustable  | Yes   |
| <b>IEC counter</b>  |   |
| • Number  | Any (only limited by the main memory)   |
| Retentivity   |   |
| — adjustable  | Yes   |
| <b>S7 times</b>   |   |
| • Number  | 2 048   |
| Retentivity   |   |
| — adjustable  | Yes   |
| <b>IEC timer</b>  |   |
| • Number  | Any (only limited by the main memory)   |
| Retentivity   |   |
| — adjustable  | Yes   |
| <b>Data areas and their retentivity</b>                   |   |
| Retentive data area (incl. timers, counters, flags), max. | 410 kbyte; For storage in NVRAM; for storage in mass storage 5 242 020 bytes                                      |
| <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>  |   |

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Retentivity adjustable</li> <li>• Retentivity preset</li> </ul>   | <p>Yes</p> <p>No</p>   |
| <b>Local data</b>  |  |
| <ul style="list-style-type: none"> <li>• per priority class, max.</li> </ul>   | 64 kbyte; max. 16 KB per block   |
| <b>Address area</b>  |  |
| Number of IO modules   | 8 192  |
| <b>I/O address area</b>  |  |
| <ul style="list-style-type: none"> <li>• Inputs</li> <li>• Outputs</li> </ul>  | <p>32 kbyte; All inputs are in the process image</p> <p>32 kbyte; All outputs are in the process image</p>   |
| <b>Subprocess images</b>   |  |
| <ul style="list-style-type: none"> <li>• Number of subprocess images, max.</li> </ul>  | 32   |
| <b>Hardware configuration</b>  |  |
| Integrated power supply  | Yes  |
| Number of distributed IO systems   | 20   |
| <b>Number of DP masters</b>  |  |
| <ul style="list-style-type: none"> <li>• Via CM</li> </ul>   | 1  |
| <b>Number of IO Controllers</b>  |  |
| <ul style="list-style-type: none"> <li>• via PC interfaces</li> </ul>  | 1  |
| <b>Rack</b>  |  |
| <ul style="list-style-type: none"> <li>• Modules per rack, max.</li> <li>• Quantity of operable ET 200SP modules, max.</li> <li>• Quantity of operable ET 200AL modules, max.</li> <li>• Number of lines, max.</li> </ul>  | <p>82; CPU + 64 modules + server module (mounting width max. 1 m) + 16 ET 200AL modules</p> <p>64</p> <p>16</p> <p>1</p>   |
| <b>PtP CM</b>  |  |
| <ul style="list-style-type: none"> <li>• Number of PtP CMs</li> </ul>  | the number of connectable PtP CMs is only limited by the number of available slots   |
| <b>Time of day</b>   |  |
| <b>Clock</b>   |  |
| <ul style="list-style-type: none"> <li>• Type</li> <li>• Hardware clock (real-time)</li> <li>• Backup time</li> <li>• Deviation per day, max.</li> </ul>   | <p>Hardware clock</p> <p>Yes; Resolution: 1 s</p> <p>6 wk; At 40 °C ambient temperature, typically</p> <p>10 s; Typ.: 2 s</p>  |
| <b>Clock synchronization</b>   |  |
| <ul style="list-style-type: none"> <li>• supported</li> <li>• to DP, master</li> <li>• on Ethernet via NTP</li> <li>• on Windows clock, device</li> </ul>  | <p>Yes</p> <p>Yes; Via CM DP module</p> <p>Yes</p> <p>Yes</p>  |
| <b>Interfaces</b>  |  |
| Number of industrial Ethernet interfaces   | 2  |
| Number of PROFINET interfaces  | 1  |
| Number of PROFIBUS interfaces  | 1; Via CM DP module  |
| Number of RS 485 interfaces  | 1; Via CM DP module  |
| Number of USB interfaces   | 4; 2x USB 2.0, 2x USB 3.0 on front side  |
| Number of SD card slots  | 1  |
| <b>Video interfaces</b>  |  |
| <ul style="list-style-type: none"> <li>• Graphics interface</li> </ul>   | 1x DisplayPort   |
| <b>1. Interface</b>  |  |
| Interface type   | PROFINET   |
| automatic detection of transmission rate   | Yes  |
| Autonegotiation  | Yes  |
| Autocrossing   | Yes  |
| Number of connections  | 88   |
| <b>Interface types</b>   |  |
| <ul style="list-style-type: none"> <li>• RJ 45 (Ethernet) <ul style="list-style-type: none"> <li>— Transmission rate, max.</li> <li>— Industrial Ethernet status LED</li> </ul> </li> <li>• Number of ports</li> <li>• integrated switch</li> <li>• BusAdapter (PROFINET)</li> </ul> | <p>Yes; Via BusAdapter BA 2x RJ45</p> <p>100 Mbit/s</p> <p>Yes</p> <p>2</p> <p>Yes</p> <p>Yes; compatible BusAdapters: BA 2x RJ45, BA 2x M12, BA 2x FC, BA 2x LC, BA LC/RJ45, BA LC/FC, BA 2x SCRJ, BA SCRJ/RJ45, BA SCRJ/FC</p> |

| 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)   |
| — shortest clock pulse  | 500 $\mu$ s  |
| — IRT   | Yes  |
| — PROFINergy  | Yes  |
| — Prioritized startup   | Yes; Max. 32 PROFINET devices  |
| — Number of connectable IO Devices, max.                                      | 128  |
| — Of which IO devices with IRT, max.  | 64   |
| — of which in line, 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  |
| — IO Devices changing during operation (partner ports), supported             | Yes  |
| — 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 500 $\mu$ s   | 500 $\mu$ s 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 $\mu$ s: 625 $\mu$ s ... 3 875 $\mu$ s) minimum cycle time start from 500 $\mu$ s                              |
| Update time for RT  |  |
| — for send cycle of 500 $\mu$ s   | 500 $\mu$ s 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   |
| Address area  |  |
| — Inputs, max.  | 8 kbyte  |
| — Outputs, max.   | 8 kbyte  |
| PROFINET IO Device  |  |
| Services  |  |
| — Isochronous mode  | No   |
| — IRT   | Yes  |
| — 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  |  |
| Interface type  | Integrated Ethernet interface  |
| automatic detection of transmission rate                                      | Yes  |
| Autonegotiation   | Yes  |
| Autocrossing  | Yes  |
| Interface types   |  |

- RJ 45 (Ethernet)
  - Transmission rate, max. 1 000 Mbit/s
  - Industrial Ethernet status LED No
- Number of ports 1

### 3. Interface

|   |  |
|---|--|
| Interface type                                  | PROFIBUS with CM DP  |
| Number of connections                           | 44   |
| <b>Interface types</b>                          |  |
| ● RS 485  | Yes  |
| <b>Protocols</b>                                |  |
| ● PROFIBUS DP master                            | Yes  |
| ● PROFIBUS DP device                            | Yes  |
| ● SIMATIC communication                         | Yes  |
| <b>PROFIBUS DP master</b>                       |  |
| ● max. number of DP devices                     | 125  |
| <b>Services</b>                                 |  |
| — Equidistance                                  | No   |
| — Isochronous mode                              | No   |
| <b>Address area</b>                             |  |
| — Inputs, max.                                  | 8 kbyte  |
| — Outputs, max.                                 | 8 kbyte  |
| <b>Interface types</b>                          |  |
| <b>RS 485</b>                                   |  |
| ● Transmission rate, max.                       | 12 Mbit/s  |
| <b>Protocols</b>                                |  |
| PROFIsafe                                       | Yes  |
| <b>Number of connections</b>                    |  |
| ● Number of connections, max.                   | 88   |
| ● Number of connections reserved for ES/HMI/web | 10   |
| ● Number of S7 routing paths                    | 16   |
| <b>Redundancy mode</b>                          |  |
| <b>Media redundancy</b>                         |  |
| — Media redundancy                              | Yes; only via BusAdapter   |
| — 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   |
| <b>SIMATIC communication</b>                    |  |
| ● PG/OP communication                           | Yes; encryption with TLS V1.3 pre-selected   |
| ● S7 routing                                    | Yes  |
| ● S7 communication, as server                   | Yes  |
| ● S7 communication, as client                   | Yes  |
| ● User data per job, max.                       | 64 kbyte; BSEND/BRCV: 64 KB; PUT/GET: 960 bytes                                    |
| <b>Open IE communication</b>                    |  |
| ● TCP/IP  | Yes  |
| — Data length, max.                             | 64 kbyte   |
| ● 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  |
| <b>Web server</b>                               |  |
| ● HTTP  | Yes; Standard and user pages   |

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>● HTTPS</li> <li>● web API <ul style="list-style-type: none"> <li>— Number of sessions, max.</li> <li>— number of simultaneous HTTP calls, max.</li> <li>— HTTP request body, max.</li> </ul> </li> </ul>   | <p>Yes; Standard and user pages</p> <p>50</p> <p>4</p> <p>131 072 byte</p>   |
| <b>OPC UA</b>  |  |
| <ul style="list-style-type: none"> <li>● Runtime license required</li> <li>● OPC UA Client <ul style="list-style-type: none"> <li>— Application authentication</li> <li>— Security policies</li> <li>— User authentication</li> <li>— Number of connections, max.</li> <li>— Number of nodes of the client interfaces, recommended max.</li> <li>— Number of elements for one call of OPC-UA-NodeGetHandleList/OPC-UA-ReadList/OPC-UA-WriteList, max.</li> <li>— Number of elements for one call of OPC-UA-NameSpaceGetIndexList, max.</li> <li>— Number of elements for one call of OPC-UA-MethodGetHandleList, max.</li> <li>— Number of simultaneous calls of the client instructions for session management, per connection, max.</li> <li>— Number of simultaneous calls of the client instructions for data access, per connection, max.</li> <li>— Number of registerable nodes, max.</li> <li>— Number of registerable method calls of OPC-UA-MethodCall, max.</li> <li>— Number of inputs/outputs when calling OPC-UA-MethodCall, max.</li> </ul> </li> <li>● OPC UA Server <ul style="list-style-type: none"> <li>— Application authentication</li> <li>— Security policies</li> <li>— User authentication</li> <li>— GDS support (certificate management)</li> <li>— Number of sessions, max.</li> <li>— Number of accessible variables, max.</li> <li>— Number of registerable nodes, max.</li> <li>— Number of subscriptions per session, max.</li> <li>— Sampling interval, min.</li> <li>— Publishing interval, min.</li> <li>— Number of server methods, max.</li> <li>— Number of inputs/outputs per server method, max.</li> <li>— Number of monitored items, recommended max.</li> <li>— Number of server interfaces, max.</li> <li>— Number of nodes for user-defined server interfaces, max.</li> </ul> </li> <li>● Alarms and Conditions <ul style="list-style-type: none"> <li>— Number of program alarms</li> <li>— Number of alarms for system diagnostics</li> </ul> </li> </ul> | <p>Yes; "Small" license required</p> <p>Yes; Data access (read, write), method call</p> <p>Yes</p> <p>Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256</p> <p>Yes; "anonymous" or by user name &amp; password</p> <p>10</p> <p>2 000</p> <p>300</p> <p>20</p> <p>100</p> <p>1</p> <p>5</p> <p>5 000</p> <p>100</p> <p>20</p> <p>Yes; Data access (read, write, subscribe), method call, custom address space</p> <p>Yes</p> <p>Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256</p> <p>Yes</p> <p>Yes</p> <p>48</p> <p>100 000</p> <p>20 000</p> <p>50</p> <p>100 ms</p> <p>200 ms</p> <p>50</p> <p>20</p> <p>2 000; for 1 s sampling interval and 1 s send interval</p> <p>10</p> <p>5 000</p> <p>Yes</p> <p>200</p> <p>100</p> |
| <b>Further protocols</b>   |  |
| <ul style="list-style-type: none"> <li>● MODBUS</li> </ul>   | <p>Yes; MODBUS TCP</p>   |
| <b>S7 message functions</b>  |  |
| Number of login stations for message functions, max.   | 32   |
| Program alarms   | Yes  |
| Number of configurable program messages, max.  | 10 000   |
| Number of simultaneously active program alarms   | 1 000  |
| <ul style="list-style-type: none"> <li>● Number of program alarms</li> <li>● Number of alarms for system diagnostics</li> <li>● Number of alarms for motion technology objects</li> </ul>  | <p>1 000</p> <p>200</p> <p>160</p>   |
| <b>Test commissioning functions</b>  |  |

|   |  |
|---|--|
| Joint commission (Team Engineering)   | Yes; Parallel online access possible for up to 10 engineering systems  |
| Status block  | Yes; up to 8 simultaneously  |
| Single step   | Yes  |
| Number of breakpoints   | 8  |
| Profiling   | No   |
| <b>Status/control</b>   |  |
| <ul style="list-style-type: none"> <li>• Status/control variable</li> </ul>   | Yes  |
| <ul style="list-style-type: none"> <li>• Variables</li> </ul>   | Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters   |
| <ul style="list-style-type: none"> <li>• Number of variables, max.</li> </ul>   |  |
| — of which status variables, max.   | 200; per job   |
| — of which control variables, max.  | 200; per job   |
| <b>Forcing</b>  |  |
| <ul style="list-style-type: none"> <li>• Forcing</li> </ul>   | Yes  |
| <ul style="list-style-type: none"> <li>• Forcing, variables</li> </ul>  | Peripheral inputs/outputs  |
| <ul style="list-style-type: none"> <li>• Number of variables, max.</li> </ul>   | 200  |
| <b>Diagnostic buffer</b>  |  |
| <ul style="list-style-type: none"> <li>• present</li> </ul>   | Yes  |
| <ul style="list-style-type: none"> <li>• Number of entries, max.</li> </ul>   | 1 000  |
| — of which powerfail-proof  | 300  |
| <b>Traces</b>   |  |
| <ul style="list-style-type: none"> <li>• Number of configurable Traces</li> </ul>                                       | 4  |
| <ul style="list-style-type: none"> <li>• Memory size per trace, max.</li> </ul>   | 512 kbyte  |
| <b>Interrupts/diagnostics/status information</b>  |  |
| <b>Diagnostics indication LED</b>   |  |
| <ul style="list-style-type: none"> <li>• RUN/STOP LED</li> </ul>  | Yes  |
| <ul style="list-style-type: none"> <li>• ERROR LED</li> </ul>   | Yes  |
| <ul style="list-style-type: none"> <li>• MAINT LED</li> </ul>   | 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 or SIZER |
| <ul style="list-style-type: none"> <li>• Number of available Motion Control resources for technology objects</li> </ul> | 2 400  |
| <ul style="list-style-type: none"> <li>• Required Motion Control resources</li> </ul>                                   |  |
| — 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</li> </ul>  |  |
| — Number of positioning axes at motion control cycle of 4 ms (typical value)  | 30   |
| — Number of positioning axes at motion control cycle of 8 ms (typical value)  | 30   |
| <b>Controller</b>   |  |
| <ul style="list-style-type: none"> <li>• PID_Compact</li> </ul>   | Yes; Universal PID controller with integrated optimization   |
| <ul style="list-style-type: none"> <li>• PID_3Step</li> </ul>   | Yes; PID controller with integrated optimization for valves  |
| <ul style="list-style-type: none"> <li>• PID-Temp</li> </ul>  | Yes; PID controller with integrated optimization for temperature   |
| <b>Counting and measuring</b>   |  |
| <ul style="list-style-type: none"> <li>• High-speed counter</li> </ul>  | Yes  |
| <b>Standards, approvals, certificates</b>   |  |
| CE mark   | Yes  |
| CSA approval  | Yes  |
| cULus   | Yes  |
| FM approval   | Yes  |
| RCM (formerly C-TICK)   | Yes  |
| <b>Highest safety class achievable in safety mode</b>   |  |
| <ul style="list-style-type: none"> <li>• Performance level according to ISO 13849-1</li> </ul>                          | PLe  |
| <ul style="list-style-type: none"> <li>• SIL acc. to IEC 61508</li> </ul>   | Up to SIL 3  |
| <b>Probability of failure (for service life of 20 years and repair time of 100 hours)</b>                               |  |
| — Low demand mode: PFDavg in accordance with  | < 2.00E-05   |

SIL3

— High demand/continuous mode: PFH in accordance with SIL3

&lt; 1.00E-09

**Ambient conditions**

## Ambient temperature during operation

- min. -20 °C
- horizontal installation, min. -20 °C
- horizontal installation, max. 60 °C; from 55°C: with max. 32 ET 200SP modules; 4x 0.3 A USB load; CFast memory card max. 10% load; SD card not used
- vertical installation, min. -20 °C
- vertical installation, max. 50 °C; from 45°C: with max. 32 ET 200SP modules; 4x 0.3 A USB load; CFast memory card and SD card; max. 10% load

## Ambient temperature during storage/transportation

- min. -40 °C
- max. 70 °C

## Vibrations

- Operation, tested according to IEC 60068-2-6 Yes
- Transport, tested acc. to IEC 60068-2-6 Yes

## Shock testing

- tested according to IEC 60068-2-6 Yes
- tested according to IEC 60068-2-27 Yes
- tested according to IEC 60068-2-29 Yes
- Storage/transport, tested acc. to IEC 60068-2-27 Yes

**Operating systems**

pre-installed operating system SIMATIC Industrial OS

**configuration / header**

## configuration / programming / header

## Programming language

- LAD Yes; incl. failsafe
- FBD Yes; incl. failsafe
- STL Yes
- SCL Yes
- CFC No
- 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: Write protection for Failsafe Yes
- Protection level: Complete protection Yes
- User administration Yes; device-wide
- Number of users 100

## programming / cycle time monitoring / header

- lower limit adjustable minimum cycle time
- upper limit adjustable maximum cycle time

## Open Development interfaces

- Size of ODK SO file, max. 5.8 Mbyte

**Peripherals/Options**

SD card Optionally for additional mass storage

**Dimensions**

Width 160 mm

Height 117 mm

Depth 75 mm

**Weights**

Weight, approx. 0.83 kg

**Classifications**

Version

Classification

|        |     |             |
|--------|-----|-------------|
| 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   | 9   | EC001603    |
| ETIM   | 8   | EC001603    |
| ETIM   | 7   | EC001603    |
| IDEA   | 4   | 3565        |
| UNSPSC | 15  | 32-15-17-05 |

Approvals / Certificates

General Product Approval Maritime application

[Manufacturer Declaration](#)

[Miscellaneous](#)

[Miscellaneous](#)



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