

SIPLUS S7-300 CPU315-2PN/DP -25 ... +70 DEGREES C WITH CONFORMAL COATING BASED ON 6ES7315-2EH14-0AB0 . CENTRAL PROCESSING UNIT WITH 384 KBYTE WORKING MEMORY, 1. INTERFACE MPI/DP 12MBIT/S, 2. INTERFACE ETHERNET PROFINET, WITH 2 PORT SWITCH, MICRO MEMORY CARD NECESSARY



| General information  |                       |
|--|-----------------------|
| Engineering with   |                       |
| <ul style="list-style-type: none"> <li>Programming package</li> </ul>                      | STEP 7 V5.5 or higher |
| Supply voltage   |                       |
| Rated value (DC)   |                       |
| <ul style="list-style-type: none"> <li>24 V DC</li> </ul>                                  | Yes                   |
| permissible range, lower limit (DC)  | 20.4 V                |
| permissible range, upper limit (DC)  | 28.8 V                |
| external protection for power supply lines (recommendation)                                | 2 A min.              |
| Mains buffering  |                       |
| <ul style="list-style-type: none"> <li>Mains/voltage failure stored energy time</li> </ul> | 5 ms                  |
| <ul style="list-style-type: none"> <li>Repeat rate, min.</li> </ul>                        | 1 s                   |
| Input current  |                       |
| Current consumption (rated value)  | 750 mA                |
| Current consumption (in no-load operation), typ.   | 150 mA                |
| Inrush current, typ.   | 4 A                   |
| $I^2t$   | 1 A <sup>2</sup> ·s   |

| Power loss  |   |
|---|---|
| Power loss, typ.  | 4.65 W  |
| Memory  |   |
| <b>Work memory</b>  |   |
| <ul style="list-style-type: none"> <li>integrated</li> </ul>  | 384 kbyte   |
| <ul style="list-style-type: none"> <li>expandable</li> </ul>  | No  |
| <ul style="list-style-type: none"> <li>Size of retentive memory for retentive data blocks</li> </ul>    | 128 kbyte   |
| <b>Load memory</b>  |   |
| <ul style="list-style-type: none"> <li>Plug-in (MMC)</li> </ul>   | Yes   |
| <ul style="list-style-type: none"> <li>Plug-in (MMC), max.</li> </ul>                                   | 8 Mbyte   |
| <ul style="list-style-type: none"> <li>Data management on MMC (after last programming), min.</li> </ul> | 10 y  |
| <b>Backup</b>   |   |
| <ul style="list-style-type: none"> <li>present</li> </ul>   | Yes; Guaranteed by MMC (maintenance-free)   |
| <ul style="list-style-type: none"> <li>without battery</li> </ul>                                       | Yes; Program and data   |
| CPU processing times  |   |
| for bit operations, typ.  | 0.05 $\mu$ s  |
| for word operations, typ.   | 0.09 $\mu$ s  |
| for fixed point arithmetic, typ.  | 0.12 $\mu$ s  |
| for floating point arithmetic, typ.   | 0.45 $\mu$ s  |
| CPU-blocks  |   |
| Number of blocks (total)  | 1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used. |
| <b>DB</b>   |   |
| <ul style="list-style-type: none"> <li>Number, max.</li> </ul>  | 1 024; Number range: 1 to 16000   |
| <ul style="list-style-type: none"> <li>Size, max.</li> </ul>  | 64 kbyte  |
| <b>FB</b>   |   |
| <ul style="list-style-type: none"> <li>Number, max.</li> </ul>  | 1 024; Number range: 0 to 7999  |
| <ul style="list-style-type: none"> <li>Size, max.</li> </ul>  | 64 kbyte  |
| <b>FC</b>   |   |
| <ul style="list-style-type: none"> <li>Number, max.</li> </ul>  | 1 024; Number range: 0 to 7999  |
| <ul style="list-style-type: none"> <li>Size, max.</li> </ul>  | 64 kbyte  |
| <b>OB</b>   |   |
| <ul style="list-style-type: none"> <li>Size, max.</li> </ul>  | 64 kbyte  |
| <ul style="list-style-type: none"> <li>Number of free cycle OBs</li> </ul>                              | 1; OB 1   |
| <ul style="list-style-type: none"> <li>Number of time alarm OBs</li> </ul>                              | 1; OB 10  |
| <ul style="list-style-type: none"> <li>Number of delay alarm OBs</li> </ul>                             | 2; OB 20, 21  |
| <ul style="list-style-type: none"> <li>Number of cyclic interrupt OBs</li> </ul>                        | 4; OB 32, 33, 34, 35  |
| <ul style="list-style-type: none"> <li>Number of process alarm OBs</li> </ul>                           | 1; OB 40  |
| <ul style="list-style-type: none"> <li>Number of DPV1 alarm OBs</li> </ul>                              | 3; OB 55, 56, 57  |

|   |  |
|---|--|
| • Number of isochronous mode OBs              | 1; OB 61   |
| • Number of startup OBs                       | 1; OB 100  |
| • Number of asynchronous error OBs            | 6; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO) |
| • Number of synchronous error OBs             | 2; OB 121, 122   |
| <b>Nesting depth</b>                          |  |
| • per priority class                          | 16   |
| • additional within an error OB               | 4  |
| <b>Counters, timers and their retentivity</b> |  |
| <b>S7 counter</b>                             |  |
| • Number                                      | 256  |
| <b>Retentivity</b>                            |  |
| — adjustable                                  | Yes  |
| — lower limit                                 | 0  |
| — upper limit                                 | 255  |
| — preset                                      | Z 0 to Z 7   |
| <b>Counting range</b>                         |  |
| — adjustable                                  | Yes  |
| — lower limit                                 | 0  |
| — upper limit                                 | 999  |
| <b>IEC counter</b>                            |  |
| • present                                     | Yes  |
| • Type  | SFB  |
| • Number                                      | Unlimited (limited only by RAM capacity)                 |
| <b>S7 times</b>                               |  |
| • Number                                      | 256  |
| <b>Retentivity</b>                            |  |
| — adjustable                                  | Yes  |
| — lower limit                                 | 0  |
| — upper limit                                 | 255  |
| — preset                                      | No retentivity   |
| <b>Time range</b>                             |  |
| — lower limit                                 | 10 ms  |
| — upper limit                                 | 9 990 s  |
| <b>IEC timer</b>                              |  |
| • present                                     | Yes  |
| • Type  | SFB  |
| • Number                                      | Unlimited (limited only by RAM capacity)                 |
| <b>Data areas and their retentivity</b>       |  |
| retentive data area in total                  | All, 128 KB max.   |
| <b>Flag</b>                                   |  |
| • Number, max.                                | 2 048 byte   |

|   |   |
|---|---|
| • Retentivity available                             | Yes; MB 0 to MB 2 047   |
| • Retentivity preset                                | MB 0 to MB 15   |
| • Number of clock memories                          | 8; 1 memory byte  |
| <b>Data blocks</b>                                  |   |
| • Retentivity adjustable                            | Yes; via non-retain property on DB  |
| • Retentivity preset                                | Yes   |
| <b>Local data</b>                                   |   |
| • per priority class, max.                          | 32 768 byte; Max. 2048 bytes per block                                    |
| <b>Address area</b>                                 |   |
| <b>I/O address area</b>                             |   |
| • Inputs  | 2 048 byte  |
| • Outputs   | 2 048 byte  |
| <b>of which distributed</b>                         |   |
| — Inputs  | 2 048 byte  |
| — Outputs   | 2 048 byte  |
| <b>Process image</b>                                |   |
| • Inputs  | 2 048 byte  |
| • Outputs   | 2 048 byte  |
| • Inputs, adjustable                                | 2 048 byte  |
| • Outputs, adjustable                               | 2 048 byte  |
| • Inputs, default                                   | 128 byte  |
| • Outputs, default                                  | 128 byte  |
| <b>Subprocess images</b>                            |   |
| • Number of subprocess images, max.                 | 1; With PROFINET IO, the length of the user data is limited to 1600 bytes |
| <b>Digital channels</b>                             |   |
| • Inputs  | 16 384  |
| — of which central                                  | 1 024   |
| • Outputs   | 16 384  |
| — of which central                                  | 1 024   |
| <b>Analog channels</b>                              |   |
| • Inputs  | 1 024   |
| — of which central                                  | 256   |
| • Outputs   | 1 024   |
| — of which central                                  | 256   |
| <b>Hardware configuration</b>                       |   |
| Number of expansion units, max.                     | 3   |
| <b>Number of DP masters</b>                         |   |
| • integrated  | 1   |
| • via CP  | 4   |
| <b>Number of operable FMs and CPs (recommended)</b> |   |

|   |  |
|---|--|
| • FM  | 8  |
| • CP, PtP   | 8  |
| • CP, LAN   | 10   |
| <b>Rack</b>   |  |
| • Racks, max.   | 4  |
| • Modules per rack, max.                                  | 8  |
| <b>Time of day</b>  |  |
| <b>Clock</b>  |  |
| • Hardware clock (real-time)                              | Yes  |
| • retentive and synchronizable                            | Yes  |
| • Backup time   | 6 wk; At 40 °C ambient temperature                                       |
| • Deviation per day, max.                                 | 10 s; Typ.: 2 s  |
| • Behavior of the clock following POWER-ON                | Clock continues running after POWER OFF                                  |
| • Behavior of the clock following expiry of backup period | Clock continues to run with the time at which the power failure occurred |
| <b>Operating hours counter</b>                            |  |
| • Number  | 1  |
| • Number/Number range                                     | 0  |
| • Range of values   | 0 to 2 <sup>31</sup> hours (when using SFC 101)                          |
| • Granularity   | 1 h  |
| • retentive   | Yes; Must be restarted at each restart                                   |
| <b>Clock synchronization</b>                              |  |
| • supported   | Yes  |
| • to MPI, master  | Yes  |
| • to MPI, slave   | Yes  |
| • to DP, master   | Yes; With DP slave only slave clock                                      |
| • to DP, slave  | Yes  |
| • in AS, master   | Yes  |
| • in AS, slave  | Yes  |
| • on Ethernet via NTP                                     | Yes; As client   |
| <b>Digital inputs</b>                                     |  |
| Number of digital inputs                                  | 0  |
| <b>Digital outputs</b>                                    |  |
| Number of digital outputs                                 | 0  |
| <b>Analog inputs</b>                                      |  |
| Number of analog inputs                                   | 0  |
| <b>Analog outputs</b>                                     |  |
| Number of analog outputs                                  | 0  |
| <b>Interfaces</b>   |  |
| Number of industrial Ethernet interfaces                  | 1; 2 ports (switch) RJ45   |

|                               |                               |
|-------------------------------|-------------------------------|
| Number of PROFINET interfaces | 1; 2 ports (switch) RJ45      |
| Number of RS 485 interfaces   | 1; Combined MPI / PROFIBUS DP |
| Number of RS 422 interfaces   | 0                             |

## 1. Interface

|  |   |
|--|---|
| Interface type   | Integrated RS 485 interface   |
| Physics  | RS 485  |
| Isolated   | Yes   |
| Power supply to interface (15 to 30 V DC), max.                              | 200 mA  |
| <b>Protocols</b>   |   |
| • MPI  | Yes   |
| • PROFIBUS DP master   | Yes   |
| • PROFIBUS DP slave  | Yes   |
| • Point-to-point connection  | No  |
| <b>MPI</b>   |   |
| • Transmission rate, max.  | 12 Mbit/s   |
| <b>Services</b>  |   |
| — PG/OP communication  | Yes   |
| — Routing  | Yes   |
| — Global data communication  | Yes   |
| — S7 basic communication   | Yes   |
| — S7 communication   | Yes   |
| — S7 communication, as client  | No; but via CP and loadable FB  |
| — S7 communication, as server  | Yes   |
| <b>PROFIBUS DP master</b>  |   |
| • Transmission rate, max.  | 12 Mbit/s   |
| • Number of DP slaves, max.  | 124   |
| <b>Services</b>  |   |
| — PG/OP communication  | Yes   |
| — Routing  | Yes   |
| — Global data communication  | No  |
| — S7 basic communication   | Yes; I blocks only  |
| — S7 communication   | Yes   |
| — S7 communication, as client  | No  |
| — S7 communication, as server  | Yes   |
| — Equidistance   | Yes   |
| — Isochronous mode   | Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO |
| — SYNC/FREEZE  | Yes   |
| — Activation/deactivation of DP slaves                                       | Yes   |
| — Number of DP slaves that can be simultaneously activated/deactivated, max. | 8   |

|   |   |
|---|---|
| — Direct data exchange (slave-to-slave communication) | Yes; As subscriber                          |
| — DPV1  | Yes   |
| <b>Address area</b>                                   |   |
| — Inputs, max.  | 2 kbyte                                     |
| — Outputs, max.                                       | 2 kbyte                                     |
| <b>User data per DP slave</b>                         |   |
| — Inputs, max.  | 244 byte                                    |
| — Outputs, max.                                       | 244 byte                                    |
| <b>PROFIBUS DP slave</b>                              |   |
| • Transmission rate, max.                             | 12 Mbit/s                                   |
| • automatic baud rate search                          | Yes; only with passive interface            |
| • Address area, max.                                  | 32  |
| • User data per address area, max.                    | 32 byte                                     |
| <b>Services</b>                                       |   |
| — PG/OP communication                                 | Yes   |
| — Routing   | Yes; Only with active interface             |
| — Global data communication                           | No  |
| — S7 basic communication                              | No  |
| — S7 communication                                    | Yes   |
| — S7 communication, as client                         | No  |
| — S7 communication, as server                         | Yes; Connection configured on one side only |
| — Direct data exchange (slave-to-slave communication) | Yes   |
| — DPV1  | No  |
| <b>Transfer memory</b>                                |   |
| — Inputs  | 244 byte                                    |
| — Outputs   | 244 byte                                    |

## 2. Interface

|  |                      |
|--|----------------------|
| Interface type                             | PROFINET             |
| Physics                                    | Ethernet RJ45        |
| Isolated                                   | Yes                  |
| automatic detection of transmission rate   | Yes; 10/100 Mbit/s   |
| Autonegotiation                            | Yes                  |
| Autocrossing                               | Yes                  |
| Change of IP address at runtime, supported | Yes                  |
| <b>Interface types</b>                     |                      |
| • Number of ports                          | 2                    |
| • integrated switch                        | Yes                  |
| <b>Media redundancy</b>                    |                      |
| • supported                                | Yes                  |
| • Switchover time on line break, typ.      | 200 ms; PROFINET MRP |

|   |   |
|---|---|
| • Number of stations in the ring, max.  | 50  |
| <b>Protocols</b>  |   |
| • MPI   | No  |
| • PROFINET IO Controller  | Yes; Also simultaneously with IO-Device functionality                                     |
| • PROFINET IO Device  | Yes; Also simultaneously with IO Controller functionality                                 |
| • PROFINET CBA  | Yes   |
| • PROFIBUS DP master  | No  |
| • PROFIBUS DP slave   | No  |
| • Open IE communication   | Yes; Via TCP/IP, ISO on TCP, and UDP  |
| • Web server  | Yes   |
| <b>PROFINET IO Controller</b>   |   |
| • Transmission rate, max.   | 100 Mbit/s  |
| <b>Services</b>   |   |
| — PG/OP communication   | Yes   |
| — Routing   | Yes   |
| — S7 communication  | Yes; With loadable FBs, max. configurable connections: 14, max. number of instances: 32   |
| — Isochronous mode  | Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO |
| — Open IE communication   | Yes; Via TCP/IP, ISO on TCP, and UDP  |
| — IRT   | Yes   |
| — Shared device   | Yes   |
| — Prioritized startup   | Yes   |
| — Number of IO devices with prioritized startup, max.                         | 32  |
| — Number of connectable IO Devices, max.                                      | 128   |
| — Of which IO devices with IRT, max.  | 64  |
| — of which in line, max.  | 64  |
| — Number of IO Devices with IRT and the option "high flexibility"             | 128   |
| — of which in line, max.  | 61  |
| — Number of connectable IO Devices for RT, max.                               | 128   |
| — of which in line, max.  | 128   |
| — Activation/deactivation of IO Devices                                       | Yes   |
| — 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   |
| — Device replacement without swap medium                                      | Yes   |
| — Send cycles   | 250 µs, 500 µs, 1 ms; 2 ms, 4 ms (not in the case of IRT with "high flexibility" option)  |



|   |   |
|---|---|
| — Updating time                                     | 250 µs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, Technical Data" for more details) |
| <b>Address area</b>                                 |   |
| — Inputs, max.                                      | 2 kbyte   |
| — Outputs, max.                                     | 2 kbyte   |
| — User data consistency, max.                       | 1 024 byte  |
| <b>PROFINET IO Device</b>                           |   |
| <b>Services</b>                                     |   |
| — PG/OP communication                               | Yes   |
| — Routing   | Yes   |
| — S7 communication                                  | Yes; With loadable FBs, max. configurable connections: 14, max. number of instances: 32                                       |
| — Isochronous mode                                  | No  |
| — Open IE communication                             | Yes; Via TCP/IP, ISO on TCP, and UDP  |
| — IRT   | Yes   |
| — PROFIenergy                                       | Yes; With SFB 73 / 74 prepared for loadable PROFIenergy standard FB for I-Device  |
| — Shared device                                     | Yes   |
| — Number of IO Controllers with shared device, max. | 2   |
| <b>Transfer memory</b>                              |   |
| — Inputs, max.                                      | 1 440 byte; Per IO Controller with shared device  |
| — Outputs, max.                                     | 1 440 byte; Per IO Controller with shared device  |
| <b>Submodules</b>                                   |   |
| — Number, max.                                      | 64  |
| — User data per submodule, max.                     | 1 024 byte  |
| <b>PROFINET CBA</b>                                 |   |
| • acyclic transmission                              | Yes   |
| • cyclic transmission                               | Yes   |
| <b>Open IE communication</b>                        |   |
| • Number of connections, max.                       | 8   |
| • Local port numbers used at the system end         | 0, 20, 21, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535                                       |
| • Keep-alive function, supported                    | Yes   |
| <b>Protocols</b>                                    |   |
| <b>Open IE communication</b>                        |   |
| • TCP/IP  | Yes; via integrated PROFINET interface and loadable FBs   |
| — Number of connections, max.                       | 8   |
| — Data length for connection type 01H, max.         | 1 460 byte  |
| — Data length for connection type 11H, max.         | 32 768 byte   |

|   |   |
|---|---|
| — several passive connections per port, supported               | Yes   |
| • ISO-on-TCP (RFC1006)  | Yes; via integrated PROFINET interface and loadable FBs   |
| — Number of connections, max.                                   | 8   |
| — Data length, max.   | 32 768 byte   |
| • UDP   | Yes; via integrated PROFINET interface and loadable FBs   |
| — Number of connections, max.                                   | 8   |
| — Data length, max.   | 1 472 byte  |
| <b>Web server</b>   |   |
| • supported   | Yes   |
| • User-defined websites   | Yes   |
| • Number of HTTP clients  | 5   |
| <b>Isochronous mode</b>   |   |
| Isochronous operation (application synchronized up to terminal) | Yes; Via PROFIBUS DP or PROFINET interface  |
| <b>Communication functions</b>                                  |   |
| PG/OP communication   | Yes   |
| Data record routing   | Yes   |
| <b>Global data communication</b>                                |   |
| • supported   | Yes   |
| • Number of GD loops, max.                                      | 8   |
| • Number of GD packets, max.                                    | 8   |
| • Number of GD packets, transmitter, max.                       | 8   |
| • Number of GD packets, receiver, max.                          | 8   |
| • Size of GD packets, max.                                      | 22 byte   |
| • Size of GD packet (of which consistent), max.                 | 22 byte   |
| <b>S7 basic communication</b>                                   |   |
| • supported   | Yes   |
| • User data per job, max.                                       | 76 byte   |
| • User data per job (of which consistent), max.                 | 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)                    |
| <b>S7 communication</b>   |   |
| • supported   | Yes   |
| • as server   | Yes   |
| • as client   | Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB                      |
| • User data per job, max.                                       | See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication) |
| <b>S5 compatible communication</b>                              |   |
| • supported   | Yes; via CP and loadable FC   |
| <b>PROFINET CBA (at set setpoint communication load)</b>        |   |
| • Setpoint for the CPU communication load                       | 50 %  |

|  |                           |
|--|---------------------------|
| • Number of remote interconnection partners                          | 32                        |
| • Number of functions, master/slave                                  | 30                        |
| • Total of all master/slave connections                              | 1 000                     |
| • Data length of all incoming connections master/slave, max.         | 4 000 byte                |
| • Data length of all outgoing connections master/slave, max.         | 4 000 byte                |
| • Number of device-internal and PROFIBUS interconnections            | 500                       |
| • Data length of device-internal und PROFIBUS interconnections, max. | 4 000 byte                |
| • Data length per connection, max.                                   | 1 400 byte                |
| <b>Remote interconnections with acyclic transmission</b>             |                           |
| — Sampling frequency: Sampling time, min.                            | 500 ms                    |
| — Number of incoming interconnections                                | 100                       |
| — Number of outgoing interconnections                                | 100                       |
| — Data length of all incoming interconnections, max.                 | 2 000 byte                |
| — Data length of all outgoing interconnections, max.                 | 2 000 byte                |
| — Data length per connection, max.                                   | 1 400 byte                |
| <b>Remote interconnections with cyclic transmission</b>              |                           |
| — Transmission frequency: Transmission interval, min.                | 10 ms                     |
| — Number of incoming interconnections                                | 200                       |
| — Number of outgoing interconnections                                | 200                       |
| — Data length of all incoming interconnections, max.                 | 2 000 byte                |
| — Data length of all outgoing interconnections, max.                 | 2 000 byte                |
| — Data length per connection, max.                                   | 450 byte                  |
| <b>HMI variables via PROFINET (acyclic)</b>                          |                           |
| — Number of stations that can log on for HMI variables (PN OPC/iMap) | 3; 2x PN OPC/1x iMap      |
| — HMI variable updating  | 500 ms                    |
| — Number of HMI variables  | 200                       |
| — Data length of all HMI variables, max.                             | 2 000 byte                |
| <b>PROFIBUS proxy functionality</b>                                  |                           |
| — supported  | Yes                       |
| — Number of linked PROFIBUS devices                                  | 16                        |
| — Data length per connection, max.                                   | 240 byte; Slave-dependent |
| <b>Number of connections</b>   |                           |
| • overall  | 16                        |

|   |   |
|---|---|
| • usable for PG communication                 | 15  |
| — reserved for PG communication               | 1   |
| — adjustable for PG communication, min.       | 1   |
| — adjustable for PG communication, max.       | 15  |
| • usable for OP communication                 | 15  |
| — reserved for OP communication               | 1   |
| — adjustable for OP communication, min.       | 1   |
| — adjustable for OP communication, max.       | 15  |
| • usable for S7 basic communication           | 14  |
| — reserved for S7 basic communication         | 0   |
| — adjustable for S7 basic communication, min. | 0   |
| — adjustable for S7 basic communication, max. | 14  |
| • usable for S7 communication                 | 14  |
| — reserved for S7 communication               | 0   |
| — adjustable for S7 communication, min.       | 0   |
| — adjustable for S7 communication, max.       | 14  |
| • total number of instances, max.             | 32  |
| • usable for routing                          | X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max. |

### S7 message functions

|  |  |
|--|--|
| Number of login stations for message functions, max. | 16; Depending on the configured connections for PG/OP and S7 basic communication |
| Process diagnostic messages                          | Yes  |
| simultaneously active Alarm-S blocks, max.           | 300  |

### Test commissioning functions

|                                    |   |
|------------------------------------|---|
| Status block                       | Yes; Up to 2 simultaneously                       |
| Single step                        | Yes   |
| Number of breakpoints              | 4   |
| <b>Status/control</b>              |   |
| • Status/control variable          | Yes   |
| • Variables                        | Inputs, outputs, memory bits, DB, times, counters |
| • Number of variables, max.        | 30  |
| — of which status variables, max.  | 30  |
| — of which control variables, max. | 14  |
| <b>Forcing</b>                     |   |
| • Forcing                          | Yes   |
| • Forcing, variables               | Inputs, outputs                                   |
| • Number of variables, max.        | 10  |
| <b>Diagnostic buffer</b>           |   |
| • present                          | Yes   |

|  |  |
|--|--|
| <ul style="list-style-type: none"> <li>Number of entries, max. <ul style="list-style-type: none"> <li>— adjustable</li> <li>— of which powerfail-proof</li> </ul> </li> <li>Number of entries readable in RUN, max. <ul style="list-style-type: none"> <li>— adjustable</li> <li>— preset</li> </ul> </li> </ul> | <p>500</p> <p>No</p> <p>100; Only the last 100 entries are retained</p> <p>499</p> <p>Yes; From 10 to 499</p> <p>10</p>  |
| <b>Service data</b>  |  |
| <ul style="list-style-type: none"> <li>can be read out</li> </ul>  | Yes  |
| <b>Standards, approvals, certificates</b>  |  |
| CE mark  | Yes  |
| UL approval  | Yes; File E239877  |
| RCM (formerly C-TICK)  | Yes  |
| KC approval  | Yes  |
| EAC (formerly Gost-R)  | Yes  |
| <b>Use in hazardous areas</b>  |  |
| <ul style="list-style-type: none"> <li>ATEX</li> </ul>   | Yes  |
| <b>Ambient conditions</b>  |  |
| <b>Ambient temperature during operation</b>  |  |
| <ul style="list-style-type: none"> <li>min.</li> <li>max.</li> </ul>   | <p>-25 °C; = Tmin</p> <p>70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use</p>  |
| <b>Ambient temperature during storage/transportation</b>   |  |
| <ul style="list-style-type: none"> <li>min.</li> <li>max.</li> </ul>   | <p>-40 °C</p> <p>70 °C</p>   |
| <b>Altitude during operation relating to sea level</b>   |  |
| <ul style="list-style-type: none"> <li>Installation altitude above sea level, max.</li> <li>Ambient air temperature-barometric pressure-altitude</li> </ul>  | <p>5 000 m</p> <p>Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)</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>  | 100 %; RH incl. condensation/frost (no commissioning under condensation conditions)  |
| <b>Resistance</b>  |  |
| <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> </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> |
| <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> </ul>  | Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request  |

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| — 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; *   |
| <b>Remark</b>  |  |
| — Note regarding classification of environmental conditions acc. to EN 60721   | * 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>• 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> | <p>Yes; Class 2 for high availability</p> <p>Yes; Discoloration of coating possible during service life</p> <p>Yes; Conformal coating, Class A</p> |
| <b>Configuration</b>   |  |
| <b>Configuration software</b>  |  |
| <ul style="list-style-type: none"> <li>• STEP 7</li> </ul>   | Yes; V5.5 or higher  |
| <b>Programming</b>   |  |
| <ul style="list-style-type: none"> <li>• Command set</li> <li>• Nesting levels</li> <li>• System functions (SFC)</li> <li>• System function blocks (SFB)</li> </ul>  | <p>see instruction list</p> <p>8</p> <p>see instruction list</p> <p>see instruction list</p>   |
| <b>Programming language</b>  |  |
| — LAD  | Yes  |
| — FBD  | Yes  |
| — STL  | Yes  |
| — SCL  | Yes  |
| — CFC  | Yes  |
| — GRAPH  | Yes  |
| — HiGraph®   | Yes  |
| <b>Know-how protection</b>   |  |
| <ul style="list-style-type: none"> <li>• User program protection/password protection</li> <li>• Block encryption</li> </ul>  | <p>Yes</p> <p>Yes; With S7 block Privacy</p>   |
| <b>Dimensions</b>  |  |
| Width  | 40 mm  |
| Height   | 125 mm   |
| Depth  | 130 mm   |
| <b>Weights</b>   |  |
| Weight, approx.  | 340 g  |
| <b>last modified:</b>  | 12/08/2018   |