



\*\*\*spare part\*\*\* SIMATIC S7-300, CPU 313C-2 DP compact CPU with MPI, 16 DI/16 DO, 3 high-speed counters (30 kHz), integrated DP interface, integrated power supply 24 V DC, work memory 128 KB, front connector (1x 40-pole) and Micro Memory Card required

| General information                                         |                                                                                         |
|-------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Product type designation                                    | CPU 313C-2                                                                              |
| HW functional status                                        | 01                                                                                      |
| Firmware version                                            | V3.3                                                                                    |
| Engineering with                                            |                                                                                         |
| • Programming package                                       | STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203                 |
| Supply voltage                                              |                                                                                         |
| Rated value (DC)                                            | 24 V                                                                                    |
| permissible range, lower limit (DC)                         | 19.2 V                                                                                  |
| permissible range, upper limit (DC)                         | 28.8 V                                                                                  |
| external protection for power supply lines (recommendation) | Miniature circuit breaker, type C; min. 2 A; miniature circuit breaker type B, min. 4 A |
| Mains buffering                                             |                                                                                         |
| • Mains/voltage failure stored energy time                  | 5 ms                                                                                    |
| • Repeat rate, min.                                         | 1 s                                                                                     |
| Load voltage L+                                             |                                                                                         |
| Digital inputs                                              |                                                                                         |
| — Rated value (DC)                                          | 24 V                                                                                    |
| — Reverse polarity protection                               | Yes                                                                                     |
| Digital outputs                                             |                                                                                         |
| — Rated value (DC)                                          | 24 V                                                                                    |
| — Reverse polarity protection                               | No                                                                                      |
| Input current                                               |                                                                                         |
| Current consumption (rated value)                           | 800 mA                                                                                  |
| Current consumption (in no-load operation), typ.            | 110 mA                                                                                  |
| Inrush current, typ.                                        | 5 A                                                                                     |
| I <sup>2</sup> t                                            | 0.7 A <sup>2</sup> ·s                                                                   |
| Digital inputs                                              |                                                                                         |
| • from load voltage L+ (without load), max.                 | 80 mA                                                                                   |
| Digital outputs                                             |                                                                                         |
| • from load voltage L+, max.                                | 50 mA                                                                                   |
| Power loss                                                  |                                                                                         |
| Power loss, typ.                                            | 9 W                                                                                     |
| Storage                                                     |                                                                                         |
| Work memory                                                 |                                                                                         |
| • integrated                                                | 128 kbyte                                                                               |
| • expandable                                                | No                                                                                      |
| Load memory                                                 |                                                                                         |
| • Plug-in (MMC)                                             | Yes                                                                                     |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Plug-in (MMC), max.</li> <li>• Data management on MMC (after last programming), min.</li> </ul>                                                                                                                                                                                                                                                                                                         | 8 Mbyte<br>10 a                                                                                                                                                                            |
| <b>Backup</b>                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                            |
| <ul style="list-style-type: none"> <li>• present</li> <li>• without battery</li> </ul>                                                                                                                                                                                                                                                                                                                                                           | Yes; Guaranteed by MMC (maintenance-free)<br>Yes; Program and data                                                                                                                         |
| <b>CPU processing times</b>                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                            |
| for bit operations, typ.                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.07 µs                                                                                                                                                                                    |
| for word operations, typ.                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.15 µs                                                                                                                                                                                    |
| for fixed point arithmetic, typ.                                                                                                                                                                                                                                                                                                                                                                                                                 | 0.2 µs                                                                                                                                                                                     |
| for floating point arithmetic, typ.                                                                                                                                                                                                                                                                                                                                                                                                              | 0.72 µs                                                                                                                                                                                    |
| <b>CPU-blocks</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                            |
| 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> <li>• Size, max.</li> </ul>                                                                                                                                                                                                                                                                                                                                                           | 1 024; Number range: 1 to 16000<br>64 kbyte                                                                                                                                                |
| <b>FB</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                            |
| <ul style="list-style-type: none"> <li>• Number, max.</li> <li>• Size, max.</li> </ul>                                                                                                                                                                                                                                                                                                                                                           | 1 024; Number range: 0 to 7999<br>64 kbyte                                                                                                                                                 |
| <b>FC</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                            |
| <ul style="list-style-type: none"> <li>• Number, max.</li> <li>• Size, max.</li> </ul>                                                                                                                                                                                                                                                                                                                                                           | 1 024; Number range: 0 to 7999<br>64 kbyte                                                                                                                                                 |
| <b>OB</b>                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                            |
| <ul style="list-style-type: none"> <li>• Number, max.</li> <li>• Size, max.</li> <li>• Number of free cycle OBs</li> <li>• Number of time alarm OBs</li> <li>• Number of delay alarm OBs</li> <li>• Number of cyclic interrupt OBs</li> <li>• Number of process alarm OBs</li> <li>• Number of DPV1 alarm OBs</li> <li>• Number of startup OBs</li> <li>• Number of asynchronous error OBs</li> <li>• Number of synchronous error OBs</li> </ul> | see instruction list<br>64 kbyte<br>1; OB 1<br>1; OB 10<br>2; OB 20, 21<br>4; OB 32, 33, 34, 35<br>1; OB 40<br>3; OB 55, 56, 57<br>1; OB 100<br>5; OB 80, 82, 85, 86, 87<br>2; OB 121, 122 |
| <b>Nesting depth</b>                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                            |
| <ul style="list-style-type: none"> <li>• per priority class</li> <li>• additional within an error OB</li> </ul>                                                                                                                                                                                                                                                                                                                                  | 16<br>4                                                                                                                                                                                    |
| <b>Counters, timers and their retentivity</b>                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                            |
| <b>S7 counter</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                            |
| <ul style="list-style-type: none"> <li>• Number</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                       | 256                                                                                                                                                                                        |
| <b>Retentivity</b>                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                            |
| — can be set                                                                                                                                                                                                                                                                                                                                                                                                                                     | Yes                                                                                                                                                                                        |
| — preset                                                                                                                                                                                                                                                                                                                                                                                                                                         | Z 0 to Z 7                                                                                                                                                                                 |
| <b>Counting range</b>                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                            |
| — lower limit                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0                                                                                                                                                                                          |
| — upper limit                                                                                                                                                                                                                                                                                                                                                                                                                                    | 999                                                                                                                                                                                        |
| <b>IEC counter</b>                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                            |
| <ul style="list-style-type: none"> <li>• present</li> <li>• Type</li> <li>• Number</li> </ul>                                                                                                                                                                                                                                                                                                                                                    | Yes<br>SFB<br>Unlimited (limited only by RAM capacity)                                                                                                                                     |
| <b>S7 timer</b>                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                            |
| <ul style="list-style-type: none"> <li>• Number</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                       | 256                                                                                                                                                                                        |
| <b>Retentivity</b>                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                            |
| — adjustable                                                                                                                                                                                                                                                                                                                                                                                                                                     | Yes                                                                                                                                                                                        |
| — preset                                                                                                                                                                                                                                                                                                                                                                                                                                         | No retentivity                                                                                                                                                                             |
| <b>Time range</b>                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                            |
| — lower limit                                                                                                                                                                                                                                                                                                                                                                                                                                    | 10 ms                                                                                                                                                                                      |
| — upper limit                                                                                                                                                                                                                                                                                                                                                                                                                                    | 9 990 s                                                                                                                                                                                    |

|                                                           |                                          |
|-----------------------------------------------------------|------------------------------------------|
| IEC timer                                                 |                                          |
| • present                                                 | Yes                                      |
| • Type                                                    | SFB                                      |
| • Number                                                  | Unlimited (limited only by RAM capacity) |
| Data areas and their retentivity                          |                                          |
| Retentive data area (incl. timers, counters, flags), max. | 64 kbyte                                 |
| Flag                                                      |                                          |
| • Size, max.                                              | 256 byte                                 |
| • Retentivity available                                   | Yes; MB 0 to MB 255                      |
| • Retentivity preset                                      | MB 0 to MB 15                            |
| • Number of clock memories                                | 8; 1 memory byte                         |
| Data blocks                                               |                                          |
| • Retentivity adjustable                                  | Yes; via non-retain property on DB       |
| • Retentivity preset                                      | Yes                                      |
| Local data                                                |                                          |
| • per priority class, max.                                | 32 kbyte; Max. 2048 bytes per block      |
| Address area                                              |                                          |
| I/O address area                                          |                                          |
| • Inputs                                                  | 2 048 byte                               |
| • Outputs                                                 | 2 048 byte                               |
| of which distributed                                      |                                          |
| — Inputs                                                  | 2 030 byte                               |
| — Outputs                                                 | 2 030 byte                               |
| Process image                                             |                                          |
| • 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                                 |
| Digital channels                                          |                                          |
| • Inputs                                                  | 16 256                                   |
| — of which central                                        | 1 008                                    |
| • Outputs                                                 | 16 256                                   |
| — of which central                                        | 1 008                                    |
| Analog channels                                           |                                          |
| • Inputs                                                  | 1 015                                    |
| — of which central                                        | 248                                      |
| • Outputs                                                 | 1 015                                    |
| — of which central                                        | 248                                      |
| Hardware configuration                                    |                                          |
| Number of expansion units, max.                           | 3                                        |
| Number of DP masters                                      |                                          |
| • integrated                                              | 1                                        |
| • via CP                                                  | 4                                        |
| Number of operable FMs and CPs (recommended)              |                                          |
| • FM                                                      | 8                                        |
| • CP, PtP                                                 | 8                                        |
| • CP, LAN                                                 | 6                                        |
| Rack                                                      |                                          |
| • Racks, max.                                             | 4                                        |
| • Modules per rack, max.                                  | 8; In rack 3 max. 7                      |
| Time of day                                               |                                          |
| Clock                                                     |                                          |
| • 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       | the clock continues at the time of day it had when power was switched off                                                                                                                                                                 |
| <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                                                                                                                                                                                                                                       |
| • on MPI, device                                                | Yes                                                                                                                                                                                                                                       |
| • to DP, master                                                 | Yes; With DP slave only slave clock                                                                                                                                                                                                       |
| • on DP, device                                                 | Yes                                                                                                                                                                                                                                       |
| • in AS, master                                                 | Yes                                                                                                                                                                                                                                       |
| • in AS, device                                                 | No                                                                                                                                                                                                                                        |
| <b>Digital inputs</b>                                           |                                                                                                                                                                                                                                           |
| Number of digital inputs                                        | 16                                                                                                                                                                                                                                        |
| • of which inputs usable for technological functions            | 12                                                                                                                                                                                                                                        |
| integrated channels (DI)                                        | 16                                                                                                                                                                                                                                        |
| Input characteristic curve in accordance with IEC 61131, type 1 | Yes                                                                                                                                                                                                                                       |
| <b>Number of simultaneously controllable inputs</b>             |                                                                                                                                                                                                                                           |
| horizontal installation                                         |                                                                                                                                                                                                                                           |
| — up to 40 °C, max.                                             | 16                                                                                                                                                                                                                                        |
| — up to 60 °C, max.                                             | 8                                                                                                                                                                                                                                         |
| vertical installation                                           |                                                                                                                                                                                                                                           |
| — up to 40 °C, max.                                             | 8                                                                                                                                                                                                                                         |
| <b>Input voltage</b>                                            |                                                                                                                                                                                                                                           |
| • Rated value (DC)                                              | 24 V                                                                                                                                                                                                                                      |
| • for signal "0"                                                | -3 to +5V                                                                                                                                                                                                                                 |
| • for signal "1"                                                | +15 to +30 V                                                                                                                                                                                                                              |
| <b>Input current</b>                                            |                                                                                                                                                                                                                                           |
| • for signal "1", typ.                                          | 8 mA                                                                                                                                                                                                                                      |
| <b>Input delay (for rated value of input voltage)</b>           |                                                                                                                                                                                                                                           |
| for standard inputs                                             |                                                                                                                                                                                                                                           |
| — parameterizable                                               | Yes; 0.1 / 0.3 / 3 / 15 ms (You can reconfigure the input delay of the standard inputs during program runtime. Please note that under certain circumstances your newly set filter time may not be effective until the next filter cycle.) |
| — Rated value                                                   | 3 ms                                                                                                                                                                                                                                      |
| for technological functions                                     |                                                                                                                                                                                                                                           |
| — at "0" to "1", max.                                           | 16 µs; Minimum pulse width/minimum pause between pulses at maximum counting frequency                                                                                                                                                     |
| <b>Cable length</b>                                             |                                                                                                                                                                                                                                           |
| • shielded, max.                                                | 1 000 m; 100 m for technological functions                                                                                                                                                                                                |
| • unshielded, max.                                              | 600 m; for technological functions: No                                                                                                                                                                                                    |
| for technological functions                                     |                                                                                                                                                                                                                                           |
| — shielded, max.                                                | 100 m; at maximum count frequency                                                                                                                                                                                                         |
| — unshielded, max.                                              | not allowed                                                                                                                                                                                                                               |
| <b>Digital outputs</b>                                          |                                                                                                                                                                                                                                           |
| Number of digital outputs                                       | 16                                                                                                                                                                                                                                        |
| • of which high-speed outputs                                   | 4; Notice: You cannot connect the fast outputs of your CPU in parallel                                                                                                                                                                    |
| integrated channels (DO)                                        | 16                                                                                                                                                                                                                                        |
| Short-circuit protection                                        | Yes; Clocked electronically                                                                                                                                                                                                               |
| • Response threshold, typ.                                      | 1 A                                                                                                                                                                                                                                       |
| Limitation of inductive shutdown voltage to                     | L+ (-48 V)                                                                                                                                                                                                                                |
| Controlling a digital input                                     | Yes                                                                                                                                                                                                                                       |
| <b>Switching capacity of the outputs</b>                        |                                                                                                                                                                                                                                           |
| • on lamp load, max.                                            | 5 W                                                                                                                                                                                                                                       |
| <b>Load resistance range</b>                                    |                                                                                                                                                                                                                                           |
| • lower limit                                                   | 48 Ω                                                                                                                                                                                                                                      |
| • upper limit                                                   | 4 kΩ                                                                                                                                                                                                                                      |

|                                                       |                                          |
|-------------------------------------------------------|------------------------------------------|
| <b>Output voltage</b>                                 |                                          |
| • for signal "1", min.                                | L+ (-0.8 V)                              |
| <b>Output current</b>                                 |                                          |
| • for signal "1" rated value                          | 500 mA                                   |
| • for signal "1" permissible range, min.              | 5 mA                                     |
| • for signal "1" permissible range, max.              | 0.6 A                                    |
| • for signal "1" minimum load current                 | 5 mA                                     |
| • for signal "0" residual current, max.               | 0.5 mA                                   |
| <b>Parallel switching of two outputs</b>              |                                          |
| • for uprating                                        | No                                       |
| • for redundant control of a load                     | Yes                                      |
| <b>Switching frequency</b>                            |                                          |
| • with resistive load, max.                           | 100 Hz                                   |
| • with inductive load, max.                           | 0.5 Hz                                   |
| • on lamp load, max.                                  | 100 Hz                                   |
| • of the pulse outputs, with resistive load, max.     | 2.5 kHz                                  |
| <b>Total current of the outputs (per group)</b>       |                                          |
| <b>horizontal installation</b>                        |                                          |
| — up to 40 °C, max.                                   | 3 A                                      |
| — up to 60 °C, max.                                   | 2 A                                      |
| <b>vertical installation</b>                          |                                          |
| — up to 40 °C, max.                                   | 2 A                                      |
| <b>Cable length</b>                                   |                                          |
| • shielded, max.                                      | 1 000 m                                  |
| • unshielded, max.                                    | 600 m                                    |
| <b>Analog inputs</b>                                  |                                          |
| Number of analog inputs                               | 0                                        |
| integrated channels (AI)                              | 0                                        |
| <b>Analog outputs</b>                                 |                                          |
| integrated channels (AO)                              | 0                                        |
| <b>Encoder</b>                                        |                                          |
| <b>Connectable encoders</b>                           |                                          |
| • 2-wire sensor                                       | Yes                                      |
| — permissible quiescent current (2-wire sensor), max. | 1.5 mA                                   |
| <b>Interfaces</b>                                     |                                          |
| Number of PROFINET interfaces                         | 0                                        |
| Number of RS 485 interfaces                           | 2; MPI and PROFIBUS DP                   |
| Number of RS 422 interfaces                           | 0                                        |
| <b>1. Interface</b>                                   |                                          |
| Interface type                                        | Integrated RS 485 interface              |
| Isolated                                              | No                                       |
| <b>Interface types</b>                                |                                          |
| • RS 485                                              | Yes                                      |
| • Output current of the interface, max.               | 200 mA                                   |
| <b>Protocols</b>                                      |                                          |
| • MPI                                                 | Yes                                      |
| • PROFIBUS DP master                                  | No                                       |
| • PROFIBUS DP device                                  | No                                       |
| • Point-to-point connection                           | No                                       |
| <b>MPI</b>                                            |                                          |
| • Transmission rate, max.                             | 187.5 kbit/s                             |
| <b>Services</b>                                       |                                          |
| — PG/OP communication                                 | Yes                                      |
| — Routing                                             | Yes                                      |
| — Global data communication                           | Yes                                      |
| — S7 basic communication                              | Yes                                      |
| — S7 communication                                    | Yes; Only server, configured on one side |
| — S7 communication, as client                         | No; but via CP and loadable FB           |
| — S7 communication, as server                         | Yes                                      |

## 2. Interface

|                                                                                |                                                                                                                                                                     |
|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Interface type                                                                 | Integrated RS 485 interface                                                                                                                                         |
| Isolated                                                                       | Yes                                                                                                                                                                 |
| Interface types                                                                |                                                                                                                                                                     |
| • RS 485                                                                       | Yes                                                                                                                                                                 |
| • Output current of the interface, max.                                        | 200 mA                                                                                                                                                              |
| Protocols                                                                      |                                                                                                                                                                     |
| • MPI                                                                          | No                                                                                                                                                                  |
| • PROFINET IO Controller                                                       | No                                                                                                                                                                  |
| • PROFINET IO device                                                           | No                                                                                                                                                                  |
| • PROFINET CBA                                                                 | No                                                                                                                                                                  |
| • PROFIBUS DP master                                                           | Yes                                                                                                                                                                 |
| • PROFIBUS DP device                                                           | Yes                                                                                                                                                                 |
| PROFIBUS DP master                                                             |                                                                                                                                                                     |
| • Transmission rate, max.                                                      | 12 Mbit/s                                                                                                                                                           |
| • max. number of DP devices                                                    | 124                                                                                                                                                                 |
| Services                                                                       |                                                                                                                                                                     |
| — PG/OP communication                                                          | Yes                                                                                                                                                                 |
| — Routing                                                                      | Yes                                                                                                                                                                 |
| — Global data communication                                                    | No                                                                                                                                                                  |
| — S7 basic communication                                                       | Yes; I blocks only                                                                                                                                                  |
| — S7 communication                                                             | Yes; Yes (only server; connection configured at one end)                                                                                                            |
| — S7 communication, as client                                                  | No                                                                                                                                                                  |
| — S7 communication, as server                                                  | Yes                                                                                                                                                                 |
| — Equidistance                                                                 | Yes                                                                                                                                                                 |
| — Isochronous mode                                                             | No                                                                                                                                                                  |
| — SYNC/FREEZE                                                                  | Yes                                                                                                                                                                 |
| — activation/deactivation of DP devices                                        | Yes                                                                                                                                                                 |
| — max. number of DP devices that can be activated/deactivated at the same time | 8                                                                                                                                                                   |
| — Direct data exchange (slave-to-slave communication)                          | Yes; as subscriber                                                                                                                                                  |
| — DPV1                                                                         | Yes                                                                                                                                                                 |
| Address area                                                                   |                                                                                                                                                                     |
| — Inputs, max.                                                                 | 2 kbyte                                                                                                                                                             |
| — Outputs, max.                                                                | 2 kbyte                                                                                                                                                             |
| User data per DP device                                                        |                                                                                                                                                                     |
| — Inputs, max.                                                                 | 244 byte                                                                                                                                                            |
| — Outputs, max.                                                                | 244 byte                                                                                                                                                            |
| PROFIBUS DP device                                                             |                                                                                                                                                                     |
| • GSD file                                                                     | The latest GSD file is available on the Internet<br>( <a href="https://www.modulplc.com/?s=6ES7313-6CG04-0AB0">https://www.modulplc.com/?s=6ES7313-6CG04-0AB0</a> ) |
| • 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                                                                                                                                                             |
| Services                                                                       |                                                                                                                                                                     |
| — PG/OP communication                                                          | Yes                                                                                                                                                                 |
| — Routing                                                                      | Yes; Only with active interface                                                                                                                                     |
| — Global data communication                                                    | No                                                                                                                                                                  |
| — S7 basic communication                                                       | No                                                                                                                                                                  |
| — S7 communication                                                             | Yes; Yes (only server; connection configured at one end)                                                                                                            |
| — S7 communication, as client                                                  | No                                                                                                                                                                  |
| — S7 communication, as server                                                  | Yes                                                                                                                                                                 |
| — Direct data exchange (slave-to-slave communication)                          | Yes                                                                                                                                                                 |
| — DPV1                                                                         | No                                                                                                                                                                  |
| Transfer memory                                                                |                                                                                                                                                                     |
| — Inputs                                                                       | 244 byte                                                                                                                                                            |
| — Outputs                                                                      | 244 byte                                                                                                                                                            |

|                                                      |                                                                                    |
|------------------------------------------------------|------------------------------------------------------------------------------------|
| <b>Protocols</b>                                     |                                                                                    |
| PROFIsafe                                            | No                                                                                 |
| <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 CP and loadable FB                                                        |
| • User data per job, max.                            | 180 kbyte; With PUT/GET                                                            |
| • User data per job (of which consistent), max.      | 240 byte; as server                                                                |
| <b>S5 compatible communication</b>                   |                                                                                    |
| • supported                                          | Yes; via CP and loadable FC                                                        |
| <b>Number of connections</b>                         |                                                                                    |
| • overall                                            | 8                                                                                  |
| • usable for PG communication                        | 7                                                                                  |
| — reserved for PG communication                      | 1                                                                                  |
| — adjustable for PG communication, min.              | 1                                                                                  |
| — adjustable for PG communication, max.              | 7                                                                                  |
| • usable for OP communication                        | 7                                                                                  |
| — reserved for OP communication                      | 1                                                                                  |
| — adjustable for OP communication, min.              | 1                                                                                  |
| — adjustable for OP communication, max.              | 7                                                                                  |
| • usable for S7 basic communication                  | 4                                                                                  |
| — reserved for S7 basic communication                | 0                                                                                  |
| — adjustable for S7 basic communication, min.        | 0                                                                                  |
| — adjustable for S7 basic communication, max.        | 4                                                                                  |
| • usable for routing                                 | 4; max.                                                                            |
| <b>S7 message functions</b>                          |                                                                                    |
| Number of login stations for message functions, max. | 8; Depending on the configured connections for PG/OP and S7 basic communication    |
| Process diagnostic messages                          | Yes                                                                                |
| simultaneously active Alarm_S blocks, max.           | 300                                                                                |
| <b>Test commissioning functions</b>                  |                                                                                    |
| 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                                                                            |
| • Number of entries, max.                        | 500                                                                            |
| — can be set                                     | No                                                                             |
| — of which powerfail-proof                       | 100; Only the last 100 entries are retained                                    |
| • Number of entries readable in RUN, max.        | 499                                                                            |
| — can be set                                     | Yes; From 10 to 499                                                            |
| — preset                                         | 10                                                                             |
| <b>Service data</b>                              |                                                                                |
| • Can be read out                                | Yes                                                                            |
| <b>Interrupts/diagnostics/status information</b> |                                                                                |
| <b>Diagnostics indication LED</b>                |                                                                                |
| • Status indicator digital input (green)         | Yes                                                                            |
| • Status indicator digital output (green)        | Yes                                                                            |
| <b>Integrated Functions</b>                      |                                                                                |
| <b>Counter</b>                                   |                                                                                |
| • Number of counters                             | 3; See "Technological Functions" manual                                        |
| • Counting frequency, max.                       | 30 kHz                                                                         |
| <b>Frequency measurement</b>                     |                                                                                |
| • Number of frequency meters                     | 3; up to 30 kHz (see "Technological Functions" manual)                         |
| controlled positioning                           | No                                                                             |
| integrated function blocks (closed-loop control) | Yes; PID controller (see "Technological Functions" manual)                     |
| PID controller                                   | Yes                                                                            |
| Number of pulse outputs                          | 3; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual) |
| Limit frequency (pulse)                          | 2.5 kHz                                                                        |
| <b>Potential separation</b>                      |                                                                                |
| <b>Potential separation digital inputs</b>       |                                                                                |
| • Potential separation digital inputs            | Yes                                                                            |
| • between the channels                           | No                                                                             |
| • between the channels and backplane bus         | Yes                                                                            |
| <b>Potential separation digital outputs</b>      |                                                                                |
| • Potential separation digital outputs           | Yes                                                                            |
| • between the channels                           | Yes                                                                            |
| • between the channels, in groups of             | 8                                                                              |
| • between the channels and backplane bus         | Yes                                                                            |
| <b>Isolation</b>                                 |                                                                                |
| Isolation tested with                            | 600 V DC                                                                       |
| <b>Ambient conditions</b>                        |                                                                                |
| <b>Ambient temperature during operation</b>      |                                                                                |
| • min.                                           | 0 °C                                                                           |
| • max.                                           | 60 °C                                                                          |
| <b>Configuration</b>                             |                                                                                |
| <b>Configuration software</b>                    |                                                                                |
| • STEP 7                                         | Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203   |
| • STEP 7 Lite                                    | No                                                                             |
| <b>Programming</b>                               |                                                                                |
| • Command set                                    | see instruction list                                                           |
| • Nesting levels                                 | 8                                                                              |
| • System functions (SFC)                         | see instruction list                                                           |
| • System function blocks (SFB)                   | see instruction list                                                           |
| <b>Programming language</b>                      |                                                                                |
| — LAD                                            | Yes                                                                            |
| — FBD                                            | Yes                                                                            |
| — STL                                            | Yes                                                                            |
| — SCL                                            | Yes                                                                            |
| — CFC                                            | Yes                                                                            |

|                                               |                            |         |                |
|-----------------------------------------------|----------------------------|---------|----------------|
| — GRAPH                                       | Yes                        |         |                |
| — HiGraph®                                    | Yes                        |         |                |
| Know-how protection                           |                            |         |                |
| • User program protection/password protection | Yes                        |         |                |
| • Block encryption                            | Yes; With S7 block Privacy |         |                |
| Dimensions                                    |                            |         |                |
| Width                                         | 80 mm                      |         |                |
| Height                                        | 125 mm                     |         |                |
| Depth                                         | 130 mm                     |         |                |
| Weights                                       |                            |         |                |
| Weight, approx.                               | 500 g                      |         |                |
| Classifications                               |                            |         |                |
|                                               |                            | Version | Classification |
|                                               | eClass                     | 16      | 27-24-22-07    |
|                                               | 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                      |                            |         |                |
| <a href="#">Manufacturer Declaration</a>      |                            |         |                |

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