SIEMENS

## Product data sheet 6AG1314-6CH04-2AY0


SIPLUS S7-300 CPU314C-2DP WITH CONFORMAL COATING ACCORDING EN50155 T1 CAT 1 CL A BASED ON 6ES7314-6CH04-0AB0 . COMPACT CPU WITH MPI, 24 DI/16 DO, 4AI, 2AO, 1 PT100, 4 FAST COUNTERS (60 KHZ), INTEGRATED DP INTERFACE, INTEGRATED 24V DC POWER SUPPLY, 192 KBYTE WORKING MEMORY, FRONT CONNECTOR (2 X 40PIN) AND MICRO MEMORY CARD REQUIRED

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| **General information** | |
| Hardware product version | 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** | |
| 24 V DC | Yes |
| 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 buffering time | 5 ms |
| Repeat rate, min. | 1 s |
| **Digital inputs** | |
| **Load voltage L+** | |
| Rated value (DC) | 24 V |
| Reverse polarity protection | Yes |

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| **Digital outputs** | |
| **Load voltage L+** | |
| **Rated value (DC)** | 24 V |
| **Reverse polarity protection** | No |
| **Input current** | |
| **Current consumption (rated value)** | 880 mA |
| **Current consumption (in no-load operation), typ.** | 150 mA |
| **Inrush current, typ.** | 5 A |
| **I²t** | 0.7 A²·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.** | 13 W |
| **Memory** | |
| **Type of memory** | other |
| **Work memory** | |
| **integrated** | 192 kbyte |
| **expandable** | No |
| **Size of retentive memory for retentive data blocks** | 64 kbyte |
| **Load memory** | |
| **Plug-in (MMC)** | Yes |
| **Plug-in (MMC), max.** | 8 Mbyte |
| **Data management on MMC (after last programming), min.** | 10 a |
| **Backup** | |
| **present** | Yes ; Guaranteed by MMC (maintenance-free) |
| **without battery** | Yes ; Program and data |
| **CPU processing times** | |
| **for bit operations, typ.** | 0.06 µs |
| **for word operations, typ.** | 0.12 µs |
| **for fixed point arithmetic, typ.** | 0.16 µs |
| **for floating point arithmetic, typ.** | 0.59 µs |
| **CPU-blocks** | |
| **Number of blocks (total)** | 1024 ; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used. |
| **DB** | |
| **Number, max.** | 1024 ; Number range: 1 to 16000 |

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| Size, max. | 64 kbyte |
| **FB** | |
| Number, max. | 1024 ; Number range: 0 to 7999 |
| Size, max. | 64 kbyte |
| **FC** | |
| Number, max. | 1024 ; Number range: 0 to 7999 |
| Size, max. | 64 kbyte |
| **OB** | |
| Description | see instruction list |
| Size, max. | 64 kbyte |
| Number of free cycle OBs | 1 ; OB 1 |
| Number of time alarm OBs | 1 ; OB 10 |
| Number of delay alarm OBs | 2 ; OB 20, 21 |
| Number of time interrupt OBs | 4 ; OB 32, 33, 34, 35 |
| Number of process alarm OBs | 1 ; OB 40 |
| Number of DPV1 alarm OBs | 3 ; OB 55, 56, 57 |
| Number of startup OBs | 1 ; OB 100 |
| Number of asynchronous error OBs | 5 ; OB 80, 82, 85, 86, 87 |
| Number of synchronous error OBs | 2 ; OB 121, 122 |
| **Nesting depth** | |
| per priority class | 16 |
| additional within an error OB | 4 |
| **Counters, timers and their retentivity** | |
| **S7 counter** | |
| Number | 256 |
| **Retentivity** | |
| adjustable | Yes |
| lower limit | 0 |
| upper limit | 255 |
| preset | Z 0 to Z 7 |
| **Counting range** | |
| lower limit | 0 |
| upper limit | 999 |
| **IEC counter** | |
| present | Yes |
| Type | SFB |
| Number | Unlimited (limited only by RAM capacity) |
| **S7 times** | |

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| Number | 256 |
| **Retentivity** | |
| adjustable | Yes |
| lower limit | 0 |
| upper limit | 255 |
| preset | No retentivity |
| **Time range** | |
| lower limit | 10 ms |
| upper limit | 9990 s |
| **IEC timer** | |
| present | Yes |
| Type | SFB |
| Number | Unlimited (limited only by RAM capacity) |
| **Data areas and their retentivity** | |
| retentive data area, total | All, max. 64 KB |
| **Flag** | |
| Number, 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** | |
| Number, max. | 1024 ; Number range: 1 to 16000 |
| Size, max. | 64 kbyte |
| 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 | 2048 byte |
| Outputs | 2048 byte |
| **of which distributed** | |
| Inputs | 2003 byte |
| Outputs | 2010 byte |
| **Process image** | |
| Inputs | 2048 byte |
| Outputs | 2048 byte |
| Inputs, adjustable | 2048 byte |

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| Outputs, adjustable | 2048 byte |
| Inputs, default | 128 byte |
| Outputs, default | 128 byte |
| **Default addresses of the integrated channels** | |
| Digital inputs | 124.0 to 126.7 |
| Digital outputs | 124.0 to 125.7 |
| Analog inputs | 752 to 761 |
| Analog outputs | 752 to 755 |
| **Digital channels** | |
| Inputs | 16048 |
| Outputs | 16096 |
| Inputs, of which central | 1016 |
| Outputs, of which central | 1008 |
| **Analog channels** | |
| Inputs | 1006 |
| Outputs | 1007 |
| Inputs, of which central | 253 |
| Outputs, of which central | 250 |
| **Hardware configuration** | |
| Expansion devices, max. | 3 |
| **Number of DP masters** | |
| integrated | 1 |
| via CP | 4 |
| **Number of operable FMs and CPs (recommended)** | |
| FM | 8 |
| CP, point-to-point | 8 |
| CP, LAN | 10 |
| **Rack** | |
| Racks, max. | 4 |
| Modules per rack, max. | 8 ; In rack 3 max. 7 |
| **Time of day** | |
| **Clock** | |
| Hardware clock (real-time clock) | Yes |
| battery-backed and synchronizable | Yes |
| Deviation per day, max. | 10 s ; Typ.: 2 s |
| Backup time | 6 wk ; At 40 °C ambient temperature |
| Behavior of the clock following POWER-ON | Clock continues running after POWER OFF |
| Behavior of the clock following expiry of backup period | Clock continues to run with the time at which the power failure occurred |

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| **Operating hours counter** | |
| Number | 1 |
| Number/Number range | 0 |
| Range of values | 0 to 2^31 hours (when using SFC 101) |
| Granularity | 1 hour |
| retentive | Yes ; Must be restarted at each restart |
| **Clock synchronization** | |
| supported | Yes |
| to MPI, master | Yes |
| to MPI, slave | Yes |
| to DP, master | Yes ; With DP slave only slave clock |
| to DP, slave | Yes |
| in AS, master | Yes |
| in AS, slave | No |
| **Digital inputs** | |
| Number of digital inputs | 24 |
| of which inputs usable for technological functions | 16 |
| integrated channels (DI) | 24 |
| Input characteristic curve in accordance with IEC 61131, type 1 | Yes |
| **Number of simultaneously controllable inputs** | |
| **horizontal installation** | |
| up to 40 °C, max. | 24 |
| up to 60 °C, max. | 12 |
| **vertical installation** | |
| up to 40 °C, max. | 12 |
| **Input voltage** | |
| Rated value, DC | 24 V |
| for signal "1" | 15 to 30 V |
| **Input current** | |
| for signal "1", typ. | 8 mA |
| **Input delay (for rated value of input voltage)** | |
| **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 counter/technological functions** | |
| at "0" to "1", max. | 8 µs ; Minimum pulse width/minimum pause between pulses at maximum counting frequency |

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| **Cable length** | |
| Cable length, shielded, max. | 1000 m ; 50 m for technological functions |
| Cable length unshielded, max. | 600 m ; For technological functions: No |
| **Technological functions** | |
| shielded, max. | 50 m ; at maximum count frequency |
| unshielded, max. | not allowed |
| **Standard DI** | |
| shielded, max. | 1000 m |
| unshielded, max. | 600 m |
| **Digital outputs** | |
| 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 |
| **Switching capacity of the outputs** | |
| Lamp load, max. | 5 W |
| **Load resistance range** | |
| lower limit | 48 Ω |
| upper limit | 4 kΩ |
| **Output voltage** | |
| for signal "1", min. | L+ (-0.8 V) |
| **Output current** | |
| 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 |
| **Parallel switching of 2 outputs** | |
| for uprating | No |
| for redundant control of a load | Yes |
| **Switching frequency** | |
| 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 |

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| Total current of the outputs (per group) | |
| horizontal installation | |
| up to 40 °C, max. | 3 A |
| up to 60 °C, max. | 2 A |
| vertical installation | |
| up to 40 °C, max. | 2 A |
| Cable length | |
| Cable length, shielded, max. | 1000 m |
| Cable length unshielded, max. | 600 m |
| Analog inputs | |
| integrated channels (AI) | 5 ; 4 x current/voltage, 1 x resistance |
| Number of analog inputs for voltage/current measurement | 4 |
| Number of analog inputs for resistance/resistance thermometer measurement | 1 |
| permissible input voltage for current input (destruction limit), max. | 5 V ; Permanent |
| permissible input voltage for voltage input (destruction limit), max. | 30 V ; Permanent |
| permissible input current for voltage input (destruction limit), max. | 0.5 mA ; Permanent |
| permissible input current for current input (destruction limit), max. | 50 mA ; Permanent |
| Technical unit for temperature measurement adjustable | Yes ; Degrees Celsius / degrees Fahrenheit / Kelvin |
| Input ranges | |
| Voltage | Yes ; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ |
| Current | Yes ; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω |
| Resistance thermometer | Yes ; Pt 100 / 10 MΩ |
| Resistance | Yes ; 0 Ω to 600 Ω / 10 MΩ |
| Input ranges (rated values), voltages | |
| 0 to +10 V | Yes |
| Input resistance (0 to 10 V) | 100 kΩ |
| Input ranges (rated values), currents | |
| 0 to 20 mA | Yes |
| Input resistance (0 to 20 mA) | 100 Ω |
| -20 to +20 mA | Yes |
| Input resistance (-20 to +20 mA) | 100 Ω |
| 4 to 20 mA | Yes |
| Input resistance (4 to 20 mA) | 100 Ω |
| Input ranges (rated values), resistance thermometers | |
| Pt 100 | Yes |
| Input resistance (Pt 100) | 10 MΩ |
| Input ranges (rated values), resistors | |

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| No-load voltage, typ. | 3.3 V |
| Measuring current, typ. | 1,25 mA |
| 0 to 600 Ohm | Yes |
| Input resistance (0 to 600 Ohm) | 10 MΩ |
| **Thermocouple (TC)** | |
| **Temperature compensation** | |
| parameterizable | No |
| **Resistance thermometer (RTD)** | |
| **Characteristic linearization** | |
| for resistance thermometer | Pt 100 |
| **Characteristic linearization** | |
| parameterizable | Yes ; by software |
| **Cable length** | |
| Cable length, shielded, max. | 100 m |
| **Analog outputs** | |
| integrated channels (AO) | 2 |
| Number of analog outputs | 2 |
| Voltage output, short-circuit protection | Yes |
| Voltage output, short-circuit current, max. | 55 mA |
| Current output, no-load voltage, max. | 14 V |
| **Output ranges, voltage** | |
| 0 to 10 V | Yes |
| -10 to +10 V | Yes |
| **Output ranges, current** | |
| 0 to 20 mA | Yes |
| -20 to +20 mA | Yes |
| 4 to 20 mA | Yes |
| **Connection of actuators** | |
| for voltage output two-wire connection | Yes ; Without compensation of the line resistances |
| for voltage output four-wire connection | No |
| for current output two-wire connection | Yes |
| **Load impedance (in rated range of output)** | |
| with voltage outputs, min. | 1 kΩ |
| with voltage outputs, capacitive load, max. | 0.1 µF |
| with current outputs, max. | 300 Ω |
| with current outputs, inductive load, max. | 0.1 mH |
| **Destruction limits against externally applied voltages and currents** | |
| Voltages at the outputs towards MANA | 16 V ; Permanent |

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| Current, max. | 50 mA ; Permanent |
| **Cable length** | |
| Cable length, shielded, max. | 200 m |
| **Analog value generation** | |
| Measurement principle | Actual value encryption (successive approximation) |
| **Integration and conversion time/resolution per channel** | |
| Resolution with overrange (bit including sign), max. | 12 bit |
| Integration time, parameterizable | Yes ; 16.6 / 20 ms |
| permissible input frequency, max. | 400 Hz |
| Interference voltage suppression for interference frequency f1 in Hz | 60 / 50 Hz |
| Conversion time (per channel) | 1 ms |
| Time constant of the input filter | 0.38 ms |
| Basic execution time of the module (all channels released) | 1 ms |
| **Settling time** | |
| for resistive load | 0.6 ms |
| for capacitive load | 1 ms |
| for inductive load | 0.5 ms |
| **Encoder** | |
| **Connection of signal encoders** | |
| for voltage measurement | Yes |
| for current measurement as 2-wire transducer | Yes ; with external supply |
| for current measurement as 4-wire transducer | Yes |
| for resistance measurement with two-wire connection | Yes ; Without compensation of the line resistances |
| for resistance measurement with three-wire connection | No |
| for resistance measurement with four-wire connection | No |
| **Connectable encoders** | |
| 2-wire sensor | Yes |
| permissible quiescent current (2-wire sensor), max. | 1.5 mA |
| **Errors/accuracies** | |
| Temperature error (relative to input range), (+/-) | 0.0060 %/K |
| Crosstalk between the inputs, min. | 60 dB |
| Repeat accuracy in steady state at 25 °C (relative to input area), (+/-) | 0.06 % |
| Output ripple (based on output area, bandwidth 0 to 50 kHz), (+/-) | 0.1 % |
| Linearity error (relative to output range), (+/-) | 0.15 % |
| Temperature error (relative to output range), (+/-) | 0.01 %/K |
| Crosstalk between the outputs, min. | 60 dB |

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| Repeat accuracy in steady state at 25 °C (relative to output area), (+/-) | 0.06 % |
| **Operational error limit in overall temperature range** | |
| Voltage, relative to input area, (+/-) | 1 % |
| Current, relative to input area, (+/-) | 1 % |
| Resistance, relative to input area, (+/-) | 1 % |
| Voltage, relative to output area, (+/-) | 1 % |
| Current, relative to output area, (+/-) | 1 % |
| **Basic error limit (operational limit at 25 °C)** | |
| Voltage, relative to input area, (+/-) | 0.8 % ; Linearity error +/- 0.06 % |
| Current, relative to input area, (+/-) | 0.8 % ; Linearity error +/- 0.06 % |
| Resistance, relative to input area, (+/-) | 0.8 % ; Linearity error +/- 0.2% |
| Resistance thermometer, relative to input area, (+/-) | 0.8 % |
| Voltage, relative to output area, (+/-) | 0.8 % |
| Current, relative to output area, (+/-) | 0.8 % |
| **Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency** | |
| Series mode interference (peak value of interference < rated value of input range), min. | 30 dB |
| Common mode interference, min. | 40 dB |
| **Interfaces** | |
| Number of USB interfaces | 0 |
| Number of parallel interfaces | 0 |
| Number of 20 mA interfaces (TTY) | 0 |
| Number of RS 232 interfaces | 0 |
| Number of RS 422 interfaces | 0 |
| Number of other interfaces | 0 |
| **1. Interface** | |
| Interface type | Integrated RS 485 interface |
| Physics | RS 485 |
| isolated | No |
| Power supply to interface (15 to 30 V DC), max. | 200 mA |
| **Functionality** | |
| MPI | Yes |
| DP master | No |
| DP slave | No |
| Point-to-point connection | No |
| **MPI** | |
| Transmission rate, max. | 187.5 kbit/s |
| **Services** | |

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|---|---|
| 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 |
| Physics | RS 485 |
| isolated | Yes |
| Power supply to interface (15 to 30 V DC), max. | 200 mA |
| **Functionality** | |
| MPI | No |
| DP master | Yes |
| DP slave | Yes |
| PROFINET IO Controller | No |
| PROFINET IO Device | No |
| PROFINET CBA | No |
| Point-to-point connection | No |
| **DP master** | |
| Transmission rate, max. | 12 Mbit/s |
| Number of DP slaves, max. | 124 |
| **Services** | |
| PG/OP communication | Yes |
| Routing | Yes |
| Global data communication | No |
| S7 basic communication | Yes ; I blocks only |
| S7 communication | Yes ; Only server, configured on one side |
| S7 communication, as client | No |
| S7 communication, as server | Yes |
| Equidistance mode support | Yes |
| Isochronous mode | No |
| SYNC/FREEZE | Yes |
| Activation/deactivation of DP slaves | Yes |
| Number of DP slaves that can be simultaneously activated/deactivated, max. | 8 |
| Direct data exchange (slave-to-slave communication) | Yes ; As subscriber |
| DPV1 | Yes |

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| **Address area** | |
| Inputs, max. | 2 kbyte |
| Outputs, max. | 2 kbyte |
| **User data per DP slave** | |
| Inputs, max. | 244 byte |
| Outputs, max. | 244 byte |
| **DP slave** | |
| GSD file | The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) |
| 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 ; Only server, configured on one side |
| 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 |
| **Communication functions** | |
| PG/OP communication | Yes |
| Data record routing | Yes |
| **Global data communication** | |
| 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 |
| **S7 basic communication** | |
| supported | Yes |

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| 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) |
| **S7 communication** | |
| 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 |
| **S5 compatible communication** | |
| supported | Yes ; via CP and loadable FC |
| **Number of connections** | |
| overall | 12 |
| usable for PG communication | 11 |
| reserved for PG communication | 1 |
| adjustable for PG communication, min. | 1 |
| adjustable for PG communication, max. | 11 |
| usable for OP communication | 11 |
| reserved for OP communication | 1 |
| adjustable for OP communication, min. | 1 |
| adjustable for OP communication, max. | 11 |
| usable for S7 basic communication | 8 |
| reserved for S7 basic communication | 0 |
| adjustable for S7 basic communication, min. | 0 |
| adjustable for S7 basic communication, max. | 8 |
| usable for routing | 4 ; max. |
| **S7 message functions** | |
| Number of login stations for message functions, max. | 12 ; Depending on the configured connections for PG/OP and S7 basic communication |
| Process diagnostic messages | Yes |
| simultaneously active Alarm-S blocks, max. | 300 |
| **Test commissioning functions** | |
| Status block | Yes ; Up to 2 simultaneously |
| Single step | Yes |
| Number of breakpoints | 4 |
| **Status/control** | |
| Status/control variable | Yes |
| Variables | Inputs, outputs, memory bits, DB, times, counters |
| Number of variables, max. | 30 |

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| of which status variables, max. | 30 |
| of which control variables, max. | 14 |
| **Forcing** | |
| Forcing | Yes |
| Forcing, variables | Inputs, outputs |
| Number of variables, max. | 10 |
| **Diagnostic buffer** | |
| present | Yes |
| Number of entries, max. | 500 |
| adjustable | No |
| of which powerfail-proof | 100 ; Only the last 100 entries are retained |
| Number of entries readable in RUN, max. | 499 |
| adjustable | Yes ; From 10 to 499 |
| preset | 10 |
| **Service data** | |
| can be read out | Yes |
| **Interrupts/diagnostics/status information** | |
| **Diagnostics indication LED** | |
| Status indicator digital output (green) | Yes |
| Status indicator digital input (green) | Yes |
| **Integrated Functions** | |
| Number of counters | 4 ; See "Technological Functions" manual |
| Counting frequency (counter) max. | 60 kHz |
| Frequency measurement | Yes |
| Number of frequency meters | 4 ; up to 60 kHz (see "Technological Functions" manual) |
| controlled positioning | Yes |
| integrated function blocks (closed-loop control) | Yes ; PID controller (see "Technological Functions" manual) |
| PID controller | Yes |
| Number of pulse outputs | 4 ; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual) |
| Limit frequency (pulse) | 2.5 kHz |
| **Galvanic isolation** | |
| **Galvanic isolation digital inputs** | |
| Galvanic isolation digital inputs | Yes |
| between the channels | No |
| between the channels and the backplane bus | Yes |
| **Galvanic isolation digital outputs** | |
| Galvanic isolation digital outputs | Yes |
| between the channels | Yes |

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| between the channels, in groups of | 8 |
| between the channels and the backplane bus | Yes |
| **Galvanic isolation analog inputs** | |
| Galvanic isolation analog inputs | Yes ; common for analog I/O |
| between the channels | No |
| between the channels and the backplane bus | Yes |
| **Galvanic isolation analog outputs** | |
| Galvanic isolation analog outputs | Yes ; common for analog I/O |
| between the channels | No |
| between the channels and the backplane bus | Yes |
| **Permissible potential difference** | |
| between different circuits | 75 VDC / 60 VAC |
| between inputs and MANA (UCM) | 8 V DC |
| between MANA and M internally (UISO) | 75 VDC / 60 VAC |
| **Isolation** | |
| Isolation tested with | 500V AC for 1 minute |
| **Standards, approvals, certificates** | |
| CE mark | Yes |
| EN 50155 | Yes ; T1 Cat. 1 Cl. A/B horizontal mounting position |
| **Ambient conditions** | |
| **Operating temperature** | |
| min. | -25 °C ; = Tmin |
| max. | 60 °C ; = Tmax; the rated temperature range of -25 ... +55 °C (T1) applies for the use on railway vehicles according to EN50155 |
| **Configuration** | |
| **Configuration software** | |
| 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 |
| **Programming** | |
| Command set | see instruction list |
| Nesting levels | 8 |
| System functions (SFC) | see instruction list |
| System function blocks (SFB) | see instruction list |
| **Programming language** | |
| LAD | Yes |
| FBD | Yes |
| STL | Yes |
| SCL | Yes |

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| CFC | Yes |
| GRAPH | Yes |
| HiGraph® | Yes |
| **Know-how protection** | |
| User program protection/password protection | Yes |
| Block encryption | Yes ; With S7 block Privacy |
| **Dimensions** | |
| Width | 120 mm |
| Height | 125 mm |
| Depth | 130 mm |
| **Weights** | |
| Weight, approx. | 680 g |
| Status | Jul 21, 2014 |