

*** SPARE PART*** SIMATIC C7-635 TOUCH, COMPACT UNIT WITH INTEGRATED COMPONENTS: S7-300 CPU314C-2 DP AND TP170B, 24 DI, 16 DO, 5 AI, 2 AO; MICRO MEMORY CARD AND CONNECTOR SET REQUIRED



| Operator control and monitoring | |
|---|---|
| Password protection | Yes |
| • Password levels | 10 |
| Text elements | Yes |
| Info texts | Yes |
| Graphics object | Yes |
| Process images | Yes |
| Alarms | Yes; Fault messages, operating messages (no buffer) |
| Process images | |
| • Number of process images | 100 |
| • Number of variables per image, max. | 50 |
| • Number of variables in message text, max. | 8 |
| Operating-/fault messages | |
| • Number of operating messages, max. | 2 000; total number of operation and fault messages |
| • Number of entries in operational log, max. | 128; not retentive |
| • Number of fault message, max. | 2 000; total number of operation and fault messages |
| • Number of entries in fault message buffer, max. | 128; not retentive |
| Recipes | |
| • Number of recipes, max. | 20 |

- Data records per recipe, max. 50; limited due to storage medium
- Entries per data record, max. 60
- Recipe data memory, max. 32 kbyte; expandable using Compact Flash Card (CF-Card)

Display

Design of display STN, CCFL backlit, 5.7" blue mode (4 blue tones)

Resolution (pixels)

- Horizontal image resolution 320 Pixel
- Vertical image resolution 240 Pixel

Backlighting

- MTBF backlighting (at 25 °C) 50 000 h

Control elements

Touch operation

- Design as touch screen Yes; analog, resistive

Supply voltage

Rated value (DC)

- 24 V DC Yes

permissible range, lower limit (DC) 20.4 V

permissible range, upper limit (DC) 28.8 V

Load voltage L+

- Rated value (DC) 24 V
- permissible range, lower limit (DC) 20.4 V
- permissible range, upper limit (DC) 28.8 V

Input current

Current consumption, typ. 350 mA; idling

Current consumption, max. 1 A

Inrush current, max. 2 A; for 70 ms

Digital inputs

- from load voltage L+ (without load), max. 70 mA

Digital outputs

- from load voltage L+, max. 20 mA; per group

Power loss

Power loss, typ. 14 W

Drives

Compact Flash Card Yes; Optional

Memory

Micro Memory Card Yes

Work memory

- integrated 64 kbyte
- expandable No

Load memory

| | |
|---|---|
| • Plug-in (MMC) | Yes |
| • Plug-in (MMC), max. | 8 Mbyte |
| Backup | |
| • present | Yes; Guaranteed by MMC (maintenance-free) |
| CPU processing times | |
| for bit operations, typ. | 0.1 μ s |
| for word operations, typ. | 0.2 μ s |
| for fixed point arithmetic, typ. | 2 μ s |
| for floating point arithmetic, typ. | 3 μ s |
| CPU-blocks | |
| DB | |
| • Number, max. | 511; DB 0 reserved |
| • Size, max. | 16 kbyte |
| FB | |
| • Number, max. | 512; see instruction list |
| • Size, max. | 16 kbyte |
| FC | |
| • Number, max. | 512; see instruction list |
| • Size, max. | 16 kbyte |
| OB | |
| • Number, max. | see instruction list |
| • Size, max. | 16 kbyte |
| Nesting depth | |
| • per priority class | 8 |
| • additional within an error OB | 4 |
| Counters, timers and their retentivity | |
| S7 counter | |
| • Number | 256 |
| Retentivity | |
| — adjustable | Yes |
| — 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 | |
| • Number | 256 |
| Retentivity | |

| | |
|---|--|
| — adjustable | Yes |
| — preset | No retentivity |
| Time range | |
| — 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. | all |
| Flag | |
| • Number, max. | 256 byte |
| • Retentivity available | Yes |
| • Retentivity preset | MB 0 to MB 15 |
| • Number of clock memories | 8; 1 memory byte |
| Data blocks | |
| • Number, max. | 511 |
| • Size, max. | 16 kbyte |
| Local data | |
| • per priority class, max. | 510 byte |
| Address area | |
| I/O address area | |
| • Inputs | 1 kbyte |
| • Outputs | 1 kbyte |
| of which distributed | |
| — Inputs | 1 000 byte |
| — Outputs | 1 000 byte |
| Process image | |
| • Inputs | 128 byte |
| • Outputs | 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 | 8 192 |
| — of which central | 922 |
| • Outputs | 8 192 |

| | |
|---|--|
| — of which central | 922 |
| Analog channels | |
| • Inputs | 512 |
| — of which central | 248 |
| • Outputs | 512 |
| — of which central | 248 |
| Hardware configuration | |
| Number of modules per system, max. | 23 |
| Number of DP masters | |
| • integrated | 1 |
| • via CP | 1 |
| Number of operable FMs and CPs (recommended) | |
| • FM | 8 |
| • CP, PtP | 8 |
| • CP, LAN | 10 |
| Rack | |
| • Racks, max. | 4 |
| • Modules per rack, max. | 4; 4 in subrack 0; 8 in subracks 1 and 2; 7 in subrack 3 |
| 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 |
| 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 |
| • in AS, master | Yes |
| Digital inputs | |
| Number of digital inputs | 24 |
| • of which inputs usable for technological functions | 16 |
| Input characteristic curve in accordance with IEC 61131, type 1 | Yes |

| | |
|---|---|
| Number of simultaneously controllable inputs | |
| horizontal installation | |
| — up to 40 °C, max. | 12 |
| vertical installation | |
| — up to 40 °C, max. | 18 |
| — up to 50 °C, max. | 12 |
| 45° mounting position | |
| — up to 45 °C, max. | 12 |
| Input voltage | |
| • Rated value (DC) | 24 V |
| • for signal "0" | -3 to +5V |
| • for signal "1" | +15 to +30V |
| Input current | |
| • for signal "1", typ. | 7 mA |
| Input delay (for rated value of input voltage) | |
| for standard inputs | |
| — parameterizable | Yes; 0.1 / 0.5 / 3 / 15 ms |
| — Rated value | 3 ms |
| for counter/technological functions | |
| — at "0" to "1", max. | 8 µs |
| Cable length | |
| • shielded, max. | 1 000 m; 100 m for technological functions |
| • unshielded, max. | 600 m |
| for technological functions | |
| — shielded, max. | 50 m; at maximum count frequency |
| — unshielded, max. | Unshielded cables are not permissible for technological functions |
| Digital outputs | |
| Number of digital outputs | 16 |
| • of which high-speed outputs | 4 |
| 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 | |
| • on 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 | 0.5 A |
| • 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 two 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 |
| Total current of the outputs (per group) | |
| all mounting positions | |
| — up to 40 °C, max. | 4 A |
| — up to 60 °C, max. | 2 A |
| horizontal installation | |
| — up to 40 °C, max. | 2 A |
| vertical installation | |
| — up to 40 °C, max. | 3 A |
| — up to 50 °C, max. | 2 A |
| 45° mounting position | |
| — up to 45 °C, max. | 2 A |
| Cable length | |
| • shielded, max. | 1 000 m |
| • unshielded, max. | 600 m |
| Analog inputs | |
| Number of analog inputs | 4 |
| • For voltage/current measurement | 4 |
| • For resistance/resistance thermometer measurement | 1 |
| • For resistance measurement | 1 |
| integrated channels (AI) | 4; and 1x PT100 |
| permissible input voltage for current input (destruction limit), max. | 2.5 V; continuous, max. 24 V momentarily |
| 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 |

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|--|--|
| Technical unit for temperature measurement adjustable | Yes; Degrees Celsius / degrees Fahrenheit / Kelvin |
| Input ranges | |
| • Voltage | Yes |
| • Current | Yes |
| • Resistance thermometer | Yes |
| • Resistance | Yes |
| Input ranges (rated values), voltages | |
| • 0 to +10 V | Yes |
| • Input resistance (0 to 10 V) | 100 k Ω |
| • -10 V to +10 V | Yes |
| • Input resistance (-10 V to +10 V) | 100 k Ω |
| Input ranges (rated values), currents | |
| • 0 to 20 mA | Yes |
| • Input resistance (0 to 20 mA) | 50 k Ω |
| • -20 mA to +20 mA | Yes |
| • Input resistance (-20 mA to +20 mA) | 50 k Ω |
| • 4 mA to 20 mA | Yes |
| • Input resistance (4 mA to 20 mA) | 50 k Ω |
| Input ranges (rated values), resistance thermometer | |
| • Pt 100 | Yes |
| • Input resistance (Pt 100) | 10 M Ω |
| Input ranges (rated values), resistors | |
| • No-load voltage, typ. | 2.5 V |
| • Measuring current, typ. | 1.8 to 3.3 mA |
| • 0 to 600 ohms | Yes |
| • Input resistance (0 to 600 ohms) | 10 M Ω |
| Thermocouple (TC) | |
| Temperature compensation | |
| — parameterizable | No |
| Characteristic linearization | |
| • parameterizable | Yes; by software |
| — for resistance thermometer | Pt 100 |
| Cable length | |
| • shielded, max. | 100 m |
| Analog outputs | |
| 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. | 17 V |
| Output ranges, voltage | |
| • 0 to 10 V | Yes |

| | |
|--|--|
| • -10 V to +10 V | Yes |
| Output ranges, current | |
| • 0 to 20 mA | Yes |
| • -20 mA to +20 mA | Yes |
| • 4 mA 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 k Ω |
| • with voltage outputs, capacitive load, max. | 0.1 μ F |
| • 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 |
| • Current, max. | 50 mA; Permanent |
| Cable length | |
| • shielded, max. | 200 m |
| Analog value generation for the inputs | |
| 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; 2,5 / 16,6 / 20 ms |
| • permissible input frequency, max. | 400 Hz |
| • Time constant of the input filter | 0.38 ms |
| • Basic execution time of the module (all channels released) | 1 ms |
| Analog value generation for the outputs | |
| Integration and conversion time/resolution per channel | |
| • Resolution with overrange (bit including sign), max. | 12 bit |
| • Conversion time (per channel) | 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

| | |
|---|-----------|
| Linearity error (relative to input range), (+/-) | 0.06 % |
| Temperature error (relative to input range), (+/-) | 0.006 %/K |
| Crosstalk between the inputs, min. | 50 dB |
| Repeat accuracy in steady state at 25 °C (relative to input range), (+/-) | 0.06 % |
| Linearity error (relative to output range), (+/-) | 0.15 % |
| Temperature error (relative to output range), (+/-) | 0.01 %/K |
| Crosstalk between the outputs, min. | 60 dB |

Operational error limit in overall temperature range

| | |
|--|-----|
| • Voltage, relative to input range, (+/-) | 1 % |
| • Current, relative to input range, (+/-) | 1 % |
| • Resistance, relative to input range, (+/-) | 5 % |
| • Voltage, relative to output range, (+/-) | 1 % |
| • Current, relative to output range, (+/-) | 1 % |

Basic error limit (operational limit at 25 °C)

| | |
|--|-------|
| • Voltage, relative to input range, (+/-) | 0.7 % |
| • Current, relative to input range, (+/-) | 0.7 % |
| • Resistance, relative to input range, (+/-) | 3 % |
| • Resistance thermometer, relative to input range, (+/-) | 3 % |
| • Voltage, relative to output range, (+/-) | 0.7 % |
| • Current, relative to output range, (+/-) | 0.7 % |

Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, $f_1 =$ 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 printer interfaces | 1; serial |
|------------------------------|-----------|

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 |
| MPI | |
| • Number of connections | 12 |
| • Transmission rate, max. | 187.5 kbit/s |
| Services | |
| — PG/OP communication | Yes |
| — Routing | Yes |
| — Global data communication | Yes |
| — S7 basic communication | Yes |
| — S7 communication | Yes |
| — S7 communication, as client | Yes; 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 |
| Number of connection resources | 12 |
| Functionality | |
| • MPI | No |
| • PROFIBUS DP master | Yes |
| • PROFIBUS DP slave | Yes |
| DP master | |
| • Number of connections, max. | 12 |
| • Transmission rate, max. | 12 Mbit/s |
| • Number of DP slaves, max. | 32 |
| Services | |
| — PG/OP communication | Yes |
| — Routing | Yes |
| — Global data communication | No |
| — S7 basic communication | No |
| — S7 communication | No |
| — S7 communication, as client | No |
| — S7 communication, as server | No |
| — Equidistance | Yes |
| — SYNC/FREEZE | Yes |

| | |
|---|--|
| — Activation/deactivation of DP slaves | Yes |
| — Direct data exchange (slave-to-slave communication) | Yes |
| Address area | |
| — Inputs, max. | 1 kbyte |
| — Outputs, max. | 1 kbyte |
| User data per DP slave | |
| — Inputs, max. | 244 byte |
| — Outputs, max. | 244 byte |
| DP slave | |
| • Number of connections | 12 |
| • Transmission rate, max. | 12 Mbit/s |
| • 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 | No |
| — Direct data exchange (slave-to-slave communication) | Yes |
| — DPV1 | No |
| Transfer memory | |
| — Inputs | 244 byte |
| — Outputs | 244 byte |
| Communication functions | |
| Global data communication | |
| • Number of GD packets, max. | 4 |
| • Number of GD packets, transmitter, max. | 4 |
| • Number of GD packets, receiver, max. | 4 |
| • Size of GD packets, max. | 22 byte |
| • Size of GD packet (of which consistent), max. | 22 byte |
| S7 basic communication | |
| • 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 | |
| • 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. | 64 byte |
| S5 compatible communication | |
| • supported | Yes; Via CP and loadable FB |
| 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 | 8 |
| — adjustable for S7 basic communication, min. | 0 |
| — adjustable for S7 basic communication, max. | 8 |
| • usable for routing | 4 |
| • Number of logical connections (also in network), max. | 4; 1 fixed with integral CPU |

| | |
|--|--|
| 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. | 40 |

| | |
|-------------------------------------|---|
| Test commissioning functions | |
| Status block | Yes |
| Single step | Yes |
| Number of breakpoints | 2 |
| Status/control | |
| • 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 |
| Forcing | |
| • Forcing | Yes |
| Diagnostic buffer | |
| • present | Yes |
| • Number of entries, max. | 100 |

— adjustable

No

Interrupts/diagnostics/status information

Alarms Yes

Integrated Functions

| | |
|--|-----------------------------------|
| Number of counters | 4 |
| Counting frequency (counter) max. | 60 kHz |
| Frequency measurement | Yes |
| Number of frequency meters | Frequency meter up to max. 60 kHz |
| controlled positioning | Yes |
| integrated function blocks (closed-loop control) | Yes; PID controller |
| PID controller | Yes |
| Number of pulse outputs | 4; Pulse outputs up to 2.5 kHz |
| Limit frequency (pulse) | 2.5 kHz |

Potential separation

Potential separation digital inputs

| | |
|--|-----|
| • between the channels | No |
| • between the channels, in groups of | 16 |
| • between the channels and backplane bus | Yes |

Potential separation digital outputs

| | |
|--|-----|
| • between the channels | Yes |
| • between the channels, in groups of | 8 |
| • between the channels and backplane bus | Yes |

Potential separation analog inputs

| | |
|--|----------------------------|
| • Potential separation analog inputs | Yes; common for analog I/O |
| • between the channels | No |
| • between the channels and backplane bus | Yes |

Potential separation analog outputs

| | |
|--|----------------------------|
| • Potential separation analog outputs | Yes; common for analog I/O |
| • between the channels | No |
| • between the channels and backplane bus | Yes |

Permissible potential difference

| | |
|--------------------------------------|-----------------|
| between different circuits | 75 V DC/60 V AC |
| Between the inputs and MANA (UCM) | 8 V DC |
| between MANA and M internally (UISO) | 75 V DC/60 V AC |

Isolation

Isolation tested with 500 V DC

EMC

Interference immunity against discharge of static electricity

| | |
|---|---|
| • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 | Yes; ±6 kV contact discharge acc. to IEC 61000-4-2, ESD; ±8 kV air discharge acc. to IEC 61000-4-2, ESD |
|---|---|

| | |
|--|---|
| Interference immunity against high-frequency electromagnetic fields | |
| <ul style="list-style-type: none"> Interference immunity against high-frequency radiation acc. to IEC 61000-4-3 | Yes; 10 V/m, with 80% amplitude modulation at 1 kHz, 80 MHz to 1 GHz (to IEC 61000-4-3); 10 V/m, pulse-modulated 50% duty cycle at 900 MHz and 1.89 GHz (to IEC61000-4-3) |
| Interference immunity to cable-borne interference | |
| <ul style="list-style-type: none"> Interference immunity on supply lines acc. to IEC 61000-4-4 | Yes |
| <ul style="list-style-type: none"> Interference immunity on signal cables acc. to IEC 61000-4-4 | Yes; ±2 kV acc. to IEC 61000-4-4, Burst |
| Interference immunity against voltage surge | |
| <ul style="list-style-type: none"> on the supply lines acc. to IEC 61000-4-5 | Yes; Surge measurements with additional protection elements: ±1 kV (to IEC 61000-4-5; µs pulse / line to line); ±2 kV (to IEC 61000-4-5; µs pulse / line to ground) |
| Interference immunity against conducted variable disturbance induced by high-frequency fields | |
| <ul style="list-style-type: none"> Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 | Yes; 10 V/m, with 80% amplitude modulation at 1 kHz, 10 kHz to 80 MHz (acc. to IEC 61000-4-6) |
| Emission of radio interference acc. to EN 55 011 | |
| <ul style="list-style-type: none"> Limit class A, for use in industrial areas | Yes |
| Degree and class of protection | |
| Degree of protection acc. to EN 60529 | |
| <ul style="list-style-type: none"> IP20 | Yes; Housing |
| <ul style="list-style-type: none"> IP65 | Yes; Front |
| Standards, approvals, certificates | |
| CSA approval | Yes |
| UL approval | Yes |
| FM approval | Yes |
| Ambient conditions | |
| Environmental conditions | Not suitable for open-air use |
| Ambient temperature during operation | |
| <ul style="list-style-type: none"> 45 degree installation, min. | 0 °C |
| <ul style="list-style-type: none"> 45 degree installation, max. | 45 °C |
| <ul style="list-style-type: none"> horizontal installation, min. | 0 °C |
| <ul style="list-style-type: none"> horizontal installation, max. | 40 °C |
| <ul style="list-style-type: none"> vertical installation, min. | 0 °C |
| <ul style="list-style-type: none"> vertical installation, max. | 50 °C |
| Ambient temperature during storage/transportation | |
| <ul style="list-style-type: none"> min. | -20 °C |
| <ul style="list-style-type: none"> max. | 70 °C |
| Air pressure acc. to IEC 60068-2-13 | |
| <ul style="list-style-type: none"> Operation, min. | 795 hPa |
| <ul style="list-style-type: none"> Operation, max. | 1 080 hPa |
| <ul style="list-style-type: none"> Storage/transport, min. | 660 hPa |

| | |
|--|---|
| • Storage/transport, max. | 1 080 hPa |
| Relative humidity | |
| • Operation, min. | 5 % |
| • Operation, max. | 95 % |
| • Storage/transport, min. | 5 % |
| • Storage/transport, max. | 95 % |
| Vibrations | |
| • Operation, tested according to IEC 60068-2-6 | Yes; 10 Hz to 58 Hz: Amplitude 0.075 mm; 58 Hz to 150 Hz: Acceleration 9.8 m/s ² |
| • Transport, tested acc. to IEC 60068-2-6 | Yes; 5 Hz to 9 Hz: amplitude 3.5 mm; 9 Hz to 500 Hz: acceleration 9.8 m/s ² (storage / transport in the packaging) |
| Shock test | |
| • tested according to IEC 60068-2-27 | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms |
| Shock testing | |
| • Operation, tested according to IEC 60068-2-29 | Yes; Half-sine: 150 m/s ² (15 g), 11 ms, 18 shocks |
| • Storage/transport, tested acc. to IEC 60068-2-29 | Yes; 250 m/s ² (25 g), 6 ms, 1 000 shocks |
| Fire resistance | |
| • Terminal strips | FV2 (tested to IEC 60707) |
| • Basic strips in housing | FV0 |
| Configuration | |
| Configuration software | |
| • STEP 7 | Yes; V5.1 SP3, STEP 7 Lite |
| • ProTool | Yes; or SIMATIC ProTool/Pro Configuration, Version 6.0 SP1 or higher |
| • ProTool/Lite | Yes |
| • ProTool/Pro | Yes; Configuration also with WinCC flexible |
| • WinCC flexible Compact | Yes |
| • WinCC flexible Standard | Yes |
| • WinCC flexible Advanced | Yes |
| 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 |
| — CFC | Yes |

| | |
|---|------------|
| — GRAPH | Yes |
| — HiGraph® | Yes |
| Know-how protection | |
| • User program protection/password protection | Yes |
| Languages | |
| Online languages | |
| • Number of online/runtime languages | 3 |
| Mechanics/material | |
| Service life | |
| • Number of operating cycles, keys | 1 000 000 |
| Dimensions | |
| Width | 260 mm |
| Height | 199 mm |
| Depth | 79 mm |
| Mounting cutout, width | 231 mm |
| Mounting cutout, height | 183 mm |
| Weights | |
| Weight, approx. | 1 380 g |
| last modified: | 03/25/2017 |