SIEMENS

Data sheet

6ES7635-2EC01-0AE3



*** SPARE PART*** SIMATIC C7-635 KEYS, COMPACT UNIT WITH INTEGRATED COMPONENTS: S7-300 CPU314C-2 DP AND OP170B, 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 | |
| Keyboard fonts | |
| Function keys | |
| Number of function keys | 10 |
| — Number of softkeys | 14 |
| 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) |
| process | , |
| CPU processing times | |
| for bit operations, typ. | 0.1 μs |
| for word operations, typ. | 0.2 μs |
| for fixed point arithmetic, typ. | 2 µs |
| for floating point arithmetic, typ. | 3 μs |
| 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 |
| — upper innit | |
| • present | Yes |
| | SFB |
| • Type | |
| Number | Unlimited (limited only by RAM capacity) |

| Retentivity — adjustable | S7 times | |
|--|--|--|
| adjustable | • Number | 256 |
| Time range lower limit | Retentivity | |
| Time range | — adjustable | Yes |
| lower limit upper limit 9 990 s IEC timer • present • present • Yes • Type SFB • Number Unlimited (limited only by RAM capacity) Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. 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 I/O address area • Inputs 1 kbyte • Outputs 1 kbyte Of which distributed Inputs 1 000 byte Outputs Process image • Inputs 128 byte Default addresses of the integrated channels Digital outputs 128 byte Default addresses of the integrated channels Digital inputs 124 to 125.7 Analog inputs 752 to 751 Analog outputs | — preset | No retentivity |
| 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. Flag • Number, max. • Retentivity available • Retentivity preset MB 0 to MB 15 • Number of clock memories Data blocks • Number, max. • Size, max. 511 • Size, max. 16 kbyte Local data • per priority class, max. Address area I/O address area I/O address area • Inputs • Outputs • Outputs 1 kbyte O which distributed — Inputs — Outputs 1 1 000 byte Process image • Inputs • Inputs • Outputs Default addresses of the integrated channels — Digital inputs — Digital outputs — Analog inputs — Analog inputs — Analog outputs 752 to 755 | Time range | |
| EC timer Present Yes | — lower limit | 10 ms |
| Present Type Type Number Unlimited (limited only by RAM capacity) Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Number, max. Retentivity available Retentivity preset Number of clock memories Number, max. Size, max. Size, max. Local data per priority class, max. Address area I/O utputs o which distributed — Inputs — Outputs — Outputs I 1 28 byte Process image I 1 puts I 28 byte Outputs Outputs Outputs Default addresses of the integrated channels — Digital inputs — Digital inputs — Digital outputs — Analog inputs — Analog outputs — Time the mitted (limited (limited only by RAM capacity) all mitter Loulimited (limited only by RAM capacity) all mitter All (mitted (limited only by RAM capacity) all mitter I Unlimited (limited only by RAM capacity) all mitter I Unlimited (limited only by RAM capacity) all max. Explay (limited only by RAM capacity) all max. 1 | — upper limit | 9 990 s |
| • Type • Number SFB Unlimited (limited only by RAM capacity) Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag • Number, max. • Retentivity available • Retentivity preset • Number of clock memories Data blocks • Number, max. • Size, max. Local data • per priority class, max. Address area I/O address area I/O address area • Inputs • Outputs • Outputs • Outputs • I nouts • Outputs • Outputs • I nouts • Outputs • Outputs • Digital inputs • Outputs | IEC timer | |
| Number Unlimited (limited only by RAM capacity) Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Number, max. Petentivity available Retentivity preset Retentivity preset Number of clock memories Number, max. Size, max. Size, max. 16 kbyte Local data Per priority class, max. 510 byte Address area I/O address area Pinputs Of which distributed I/O byte Process image I/O address of the integrated channels Default addresses of the integrated channels Default addresses of the integrated channels Digital outputs Default outputs Default addresses of the integrated channels Digital outputs Default outputs Default addresses of the integrated channels Digital outputs Default o | • present | Yes |
| Retentive data area (incl. timers, counters, flags), max. Flag Number, max. Patentivity available Retentivity preset Number of clock memories By 1 memory byte Data blocks Number, max. Size, max. Size obyte Address area I/O address area | • Type | SFB |
| Retentive data area (incl. timers, counters, flags), max. Flag • Number, max. • Retentivity available • Retentivity preset • Number of clock memories • Number, max. • Size, max. • Size, max. Local data • per priority class, max. Address area I/O address area I/O address area • Inputs • Outputs • Outputs | • Number | Unlimited (limited only by RAM capacity) |
| Flag Number, max. Retentivity available Retentivity preset Number of clock memories Number, max. Size, max. Size, max. Size, max. Size, max. Size, max. Size, max. Size of which distributed Inputs Outputs Otuputs Process image Inputs Inputs Outputs Default addresses of the integrated channels Default addresses of the integrated channe | Data areas and their retentivity | |
| 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 I/O address area I/O address industributed Inputs 1 kbyte Outputs 1 kbyte Outputs 1 000 byte Process image Inputs 1 000 byte Process image Inputs 128 byte Outputs 128 byte Default addresses of the integrated channels Digital inputs 124.0 to 125.7 Analog inputs 752 to 755 | Retentive data area (incl. timers, counters, flags), | all |
| Number, max. Retentivity available Retentivity preset Retentivity preset Number of clock memories Number of clock memories Number, max. Size, max. Size, max. Local data per priority class, max. Address area //O address area //O address area //O address area //O uputs Duputs I kbyte Outputs 1 kbyte Outputs 1 1 000 byte Process image I nputs Outputs Default addresses of the integrated channels — Digital inputs — Digital outputs — Digital outputs — Analog outputs — Analog outputs — Analog outputs — Number of MB 0 to MB 15 MB 0 to MB 15 Ab 16 NB 0 to MB 15 Ab 16 NB 0 to MB 15 Ab 16 NB 0 to MB 15 Ab 16 Ab 16 Ab 17 Ab 18 Ab 19 Ab | | |
| Retentivity available Retentivity preset Retentivity preset Retentivity preset NMB 0 to MB 15 Number of clock memories R; 1 memory byte Data blocks Number, max. Size, max. 16 kbyte Local data per priority class, max. 510 byte Address area //O address area //O address area //O address area //O address area Inputs Address area //O address area | | |
| Retentivity preset Number of clock memories Number, max. Size, max. Number, max. Size, max. Retentivity preset Number, max. Size, max. Number, max. Size, max. Size, max | | |
| Number of clock memories 8; 1 memory byte Data blocks Number, max. Size, max. 16 kbyte Local data per priority class, max. 510 byte Address area //O address area //O address area I/O address area I/O byte - Outputs 1 kbyte 0 which distributed - Inputs - Outputs 1 000 byte - Outputs 1 1000 byte Process image Inputs Outputs 1 128 byte Outputs Default addresses of the integrated channels - Digital inputs - Digital inputs - Digital outputs - Analog inputs - Analog outputs - Size in memory byte 511 100 byte 1128 byte 128 byte | Retentivity available | |
| Data blocks ● Number, max. 511 ● Size, max. 16 kbyte Local data • per priority class, max. ● per priority class, max. 510 byte Address area I/O address area ● Inputs 1 kbyte ● Outputs 1 kbyte of which distributed — Inputs — Outputs 1 000 byte Process image • Inputs • Inputs 128 byte • Outputs 128 byte Default addresses of the integrated channels — Digital inputs — Digital outputs 124.0 to 125.7 — Analog inputs 752 to 755 — Analog outputs 752 to 755 | | MB 0 to MB 15 |
| Number, max. 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 — Outputs 1 000 byte Process image Inputs Inputs Outputs Process image Inputs 128 byte Default addresses of the integrated channels — Digital inputs — Digital outputs — Digital outputs — Analog inputs — Analog outputs 752 to 755 | | 8; 1 memory byte |
| ● Size, max. Local data ● per priority class, max. 510 byte Address area I/O address area I/O address area ● Inputs ● Outputs Outputs 1 kbyte of which distributed — Inputs — Outputs Process image ● Inputs ● Outputs 1 28 byte ● Outputs Default addresses of the integrated channels — Digital inputs — Digital outputs 1 24.0 to 125.7 — Analog outputs — Analog outputs 752 to 755 | Data blocks | |
| Local data • per priority class, max. Address area I/O address area • Inputs • Outputs • Outputs of which distributed — Inputs — Outputs 1 000 byte — Outputs Process image • Inputs • Outputs 1 28 byte • Outputs Default addresses of the integrated channels — Digital inputs — Digital outputs 1 24.0 to 125.7 — Analog inputs — Analog outputs 5 10 byte 1 kbyte 1 kbyte 1 000 byte 1 000 byte 1 28 byte 1 28 byte 1 28 byte 1 24.0 to 126.7 - Analog outputs 1 24.0 to 125.7 | Number, max. | |
| Per priority class, max. Address area I/O address area I kbyte Outputs I kbyte Outputs I kbyte I houts I houd byte Outputs I houd byte Process image I liputs I | | 16 kbyte |
| Address area I/O address area I/O address area I/O address area I kbyte Outputs I kbyte I 124.0 to 126.7 I 28 byte I 28 | Local data | |
| I/O address area ● Inputs ● Outputs Outputs 1 kbyte of which distributed — Inputs — Outputs 1 000 byte Process image ● Inputs ● Outputs 128 byte ● Outputs Default addresses of the integrated channels — Digital inputs — Digital outputs 124.0 to 125.7 — Analog inputs — Analog outputs 752 to 755 | • per priority class, max. | 510 byte |
| Inputs Outputs 1 kbyte Outputs 1 000 byte — Outputs 1 000 byte Process image Inputs Inputs Outputs Outputs Default addresses of the integrated channels — Digital inputs — Digital outputs — Digital outputs — Analog inputs — Analog outputs 752 to 755 | | |
| Outputs of which distributed — Inputs — Outputs 1 000 byte Process image Inputs 128 byte Outputs Outputs Default addresses of the integrated channels — Digital inputs — Digital outputs — Digital outputs — Analog inputs — Analog outputs 752 to 755 | I/O address area | |
| of which distributed — Inputs — Outputs 1 000 byte Process image Inputs Outputs 128 byte Outputs Default addresses of the integrated channels — Digital inputs — Digital outputs 124.0 to 126.7 — Analog inputs — Analog outputs 752 to 761 — Analog outputs | • Inputs | |
| — Inputs — Outputs 1 000 byte Process image Inputs Outputs Outputs 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 | Outputs | 1 kbyte |
| Outputs Process image Inputs Outputs Outputs Default addresses of the integrated channels Digital inputs Digital outputs 124.0 to 126.7 Digital outputs Analog inputs Analog outputs 752 to 755 | of which distributed | |
| Process image Inputs Outputs Outputs Default addresses of the integrated channels — Digital inputs — Digital outputs 124.0 to 126.7 — Digital outputs 124.0 to 125.7 — Analog inputs 752 to 761 — Analog outputs | — Inputs | |
| Inputs Outputs Default addresses of the integrated channels — Digital inputs — Digital outputs — Analog inputs — Analog outputs 128 byte 124 0 to 126.7 124 0 to | — Outputs | 1 000 byte |
| Outputs Default addresses of the integrated channels — Digital inputs — Digital outputs — Analog inputs — Analog outputs 124.0 to 125.7 — Analog outputs 752 to 751 | Process image | |
| 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 | • Inputs | |
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| Digital outputs Analog inputs Analog outputs 752 to 761 752 to 755 | Default addresses of the integrated channels | |
| — Analog inputs — Analog outputs 752 to 761 752 to 755 | — Digital inputs | 124.0 to 126.7 |
| — Analog outputs 752 to 755 | — Digital outputs | 124.0 to 125.7 |
| | — Analog inputs | 752 to 761 |
| Digital channels | — Analog outputs | 752 to 755 |
| | Digital channels | |

| Outputs 8 192 Outputs 922 Analog channels Inputs 512 Outputs 512 Outputs 512 Outputs 512 Outputs 512 Outputs 512 Outputs 513 Outputs 514 | • Inputs | 8 192 |
|--|---|---|
| Analog channels | — of which central | 922 |
| Analog channels Inputs Inputs Of which central Outputs Of which central Outputs Of which central Analog channels Outputs Of which central Outputs Outputs | Outputs | 8 192 |
| • Inputs | — of which central | 922 |
| — 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, PIP 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/Number range 0 • Range of values 0 to 2^31 hours (when using SFC 101) • Granularity 1 hour • retentive Range of values 0 to 2^31 hours (when using SFC 101) • supported Yes • to MPI, slave Yes • in AS, master | Analog channels | |
| 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 1 • Number 1 • Number 2 • Range of values 0 to 2^31 hours (when using SFC 101) • Granularity 1 hour • retentive Pess Wust be restarted at each restart Clock synchronization • supported Yes • to MPI, slave Yes • in AS, master | • Inputs | 512 |
| ### Display of Market Configuration Number of modules per system, max. 23 | — of which central | 248 |
| Hardware configuration Number of modules per system, max. 23 Number of DP masters • integrated • via CP 1 Number of operable FMs and CPs (recommended) • FM • CP, PtP • 8 • CP, LAN 10 Rack • Racks, max. • Modules per rack, max. • Modules per rack, max. • Hardware clock (real-time) • retentive and synchronizable • Backup time • Deviation per day, max. 10 s Operating hours counter • Number • Number • Number • Number • Number 1 • Number 1 • Number 1 • Number 1 • Number 2 • Range of values • Granularity • retentive • retentive • System of table of the counter • Number 1 • Number 1 • Number 1 • Number 1 • Number 2 • Range of values • Granularity • retentive • Testentive • System of the restarted at each restart Clock synchronization • supported • Ves • to MPI, master • to MPI, slave • in AS, master | Outputs | 512 |
| Number of modules per system, max. Number of DP masters integrated via CP 1 Number of operable FMs and CPs (recommended) FM CP, PtP 8 CP, LAN 10 Rack Racks, max. Modules per rack, max. Yes Petentive and synchronizable Deviation per day, max. Packup time Deviation per day, max. Operating hours counter Number Number Number of values Granularity Petentive Pe | — of which central | 248 |
| Number of DP masters integrated via CP 1 Number of operable FMs and CPs (recommended) FM CP, PtP CP, LAN 10 Rack Racks, max. Modules per rack, max. 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) retentive and synchronizable Backup time Operating hours counter Number Number Number Range of values Granularity retentive Clock synchronization Supported Yes; Must be restarted at each restart Clock synchronization Supported Yes Ves Yes Operating hours counter Yes; Must be restarted at each restart Clock synchronization Supported Yes Operating hours Yes Number Petentive Yes Number Yes Yes | Hardware configuration | |
| integrated • via CP Number of operable FMs and CPs (recommended) • FM • CP, PtP 8 • CP, LAN 10 Rack • Racks, max. • Racks, max. • Modules per rack, max. • Hardware clock (real-time) • retentive and synchronizable • Backup time • Deviation per day, max. Operating hours counter • Number 1 • Number 1 • Range of values • Granularity • retentive • tenentive • Supported • S | Number of modules per system, max. | 23 |
| Number of operable FMs and CPs (recommended) FM | Number of DP masters | |
| Number of operable FMs and CPs (recommended) • FM • CP, PtP • CP, LAN 10 Rack • Racks, max. • Modules per rack, max. • Modules per rack, max. • Hardware clock (real-time) • retentive and synchronizable • Deviation per day, max. Operating hours counter • Number • Number • Number (Number range) • Range of values • Granularity • retentive • Granularity • retentive • Synchronization • supported • Supported • Supported • Yes • Must be restarted at each restart Clock synchronization • supported • Yes • to MPI, master • Yes • in AS, master | • integrated | 1 |
| FM CP, PtP 8 CP, LAN 10 Rack Rack Racks, max. Modules per rack, max. Yes Ves Hardware clock (real-time) retentive and synchronizable Deviation per day, max. Operating hours counter Number Number/Number range Range of values Range of values Granularity retentive Service with the perstanted at each restart Clock Supported Yes Yes Object of MPI, master Yes | • via CP | 1 |
| CP, PtP CP, LAN CP, L | Number of operable FMs and CPs (recommended) | |
| CP, LAN Rack Racks, max. Modules per rack, max. Yes Hardware clock (real-time) retentive and synchronizable Deviation per day, max. Operating hours counter Number Number Number 1 Number/Number range Range of values Range of values Granularity retentive Yes Number Ves; Must be restarted at each restart Clock synchronization Yes Ves Ves Ves Ves Ves Ves Ves | • FM | 8 |
| Racks (Packs, max.) Racks, max. Modules per rack, max. Yes Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Peraceting for values Range of va | • CP, PtP | 8 |
| Racks, max. 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) retentive and synchronizable Backup time Deviation per day, max. Operating hours counter Number Number Number of Number of Sange of values Range of values Granularity retentive Yes; Must be restarted at each restart Clock synchronization supported MPI, master Other of MPI, slave In AS, master Pigital inputs | • CP, LAN | 10 |
| 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) retentive and synchronizable Backup time Deviation per day, max. Operating hours counter Number Number Number 1 Number/Number range Range of values Granularity retentive Yes; Must be restarted at each restart Clock synchronization supported Yes to MPI, master to MPI, slave in AS, master Pes Yes Digital inputs | Rack | |
| Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Operating hours counter Number Number 1 Number/Number range Range of values Granularity retentive Yes; Must be restarted at each restart Clock synchronization Sumported Yes To MPI, master To MPI, slave Fin AS, master Yes Digital inputs | • Racks, max. | 4 |
| Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Operating hours counter Number Number | Modules per rack, max. | 4; 4 in subrack 0; 8 in subracks 1 and 2; 7 in subrack 3 |
| Hardware clock (real-time) retentive and synchronizable Backup time 6 wk; At 40 °C ambient temperature Deviation per day, max. 10 s Operating hours counter Number Number on the synchronization Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave in AS, master Digital inputs | Time of day | |
| retentive and synchronizable Backup time Deviation per day, max. Operating hours counter Number Number Number/Number range O to 2^31 hours (when using SFC 101) Granularity retentive Clock synchronization supported ves to MPI, master to MPI, slave in AS, master Pevaluarity Digital inputs | Clock | |
| Backup time Deviation per day, max. Operating hours counter Number Number Number/Number range Range of values Granularity retentive Clock synchronization supported Other MPI, master Other MPI, slave Other Michael Mich | Hardware clock (real-time) | Yes |
| Deviation per day, max. Operating hours counter Number Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave in AS, master O to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes Yes Yes Yes Yes Yes Digital inputs | retentive and synchronizable | |
| Operating hours counter Number Number Number/Number range Range of values Range of values Granularity retentive Yes; Must be restarted at each restart Clock synchronization supported to MPI, master to MPI, slave in AS, master Digital inputs | Backup time | 6 wk; At 40 °C ambient temperature |
| Number Number/Number range Range of values O to 2^31 hours (when using SFC 101) Granularity retentive Yes; Must be restarted at each restart Clock synchronization supported to MPI, master to MPI, slave in AS, master Digital inputs Digital inputs | Deviation per day, max. | 10 s |
| Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave in AS, master Digital inputs 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes to MPI, slave Yes Yes in AS, master Digital inputs | 0 | |
| Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave in AS, master Digital inputs 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes to MPI, slave Yes | Operating nours counter | |
| Granularity retentive Yes; Must be restarted at each restart Clock synchronization supported to MPI, master to MPI, slave in AS, master Digital inputs 1 hour Yes; Must be restarted at each restart Yes to MPI, slave Yes Yes in AS, master Digital inputs | | |
| retentive Yes; Must be restarted at each restart Clock synchronization supported to MPI, master to MPI, slave in AS, master Digital inputs | • Number | 1 |
| Clock synchronization • supported Yes • to MPI, master Yes • to MPI, slave Yes • in AS, master Yes Digital inputs | NumberNumber/Number range | 1 0 |
| supported to MPI, master to MPI, slave in AS, master Digital inputs | NumberNumber/Number rangeRange of values | 1 0 0 to 2^31 hours (when using SFC 101) |
| to MPI, master to MPI, slave in AS, master Digital inputs | NumberNumber/Number rangeRange of valuesGranularity | 1 0 0 to 2^31 hours (when using SFC 101) 1 hour |
| • to MPI, slave • in AS, master Yes Digital inputs | Number Number/Number range Range of values Granularity retentive | 1 0 0 to 2^31 hours (when using SFC 101) 1 hour |
| • in AS, master Yes Digital inputs | Number Number/Number range Range of values Granularity retentive Clock synchronization | 1 0 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart |
| Digital inputs | Number Number/Number range Range of values Granularity retentive Clock synchronization supported | 1 0 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes |
| | Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master | 1 0 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes Yes |
| Number of digital inputs 24 | Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave | 1 0 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes Yes Yes |
| | Number Number/Number range Range of values Granularity retentive Clock synchronization supported to MPI, master to MPI, slave in AS, master Digital inputs | 1 0 0 to 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Yes Yes Yes Yes Yes |

| 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 | |
|--|--|
| Output voltage | L+ (-0.8 V) |
| • for signal "1", min. | LT (-0.0 V) |
| Output current | 0.5 A |
| • for signal "1" rated value | |
| • 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 | |
| Analog inputs Number of analog inputs | 4 |
| For voltage/current measurement | 4 |
| For resistance/resistance thermometer | 1 |
| measurement | |
| For resistance measurement | 1 |
| integrated channels (AI) | 4; and 1x PT100 |
| permissible input voltage for current input | 2.5 V; continuous, max. 24 V momentarily |
| (destruction limit), max. permissible input voltage for voltage input | 30 V; Permanent |
| (destruction limit), max. | oo i, i diliulioni |

| 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 |
| Current | Yes |
| Resistance thermometer | Yes |
| Resistance | Yes |
| Input ranges (rated values), voltages | |
| • 0 to +10 V | Yes |
| Input resistance (0 to 10 V) | 100 kΩ |
| • -10 V to +10 V | Yes |
| • Input resistance (-10 V to +10 V) | 100 kΩ |
| Input ranges (rated values), currents | |
| • 0 to 20 mA | Yes |
| Input resistance (0 to 20 mA) | 50 kΩ |
| • -20 mA to +20 mA | Yes |
| • Input resistance (-20 mA to +20 mA) | 50 kΩ |
| • 4 mA to 20 mA | Yes |
| Input resistance (4 mA to 20 mA) | 50 kΩ |
| Input ranges (rated values), resistance thermometer | |
| ● Pt 100 | Yes |
| • Input resistance (Pt 100) | 10 ΜΩ |
| 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 ΜΩ |
| 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 |

| Valtaga autout alaget signification of garage | FF A |
|---|---|
| Voltage output, short-circuit current, max. Current output, no-load voltage, max. | 55 mA 17 V |
| <u> </u> | 17 V |
| Output ranges, voltage • 0 to 10 V | Yes |
| | Yes |
| • -10 V to +10 V | Tes |
| Output ranges, current | Vaa |
| • 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 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 an | d currents |
| Voltages at the outputs towards MANA | 16 V; Permanent |
| • Current, max. | 50 mA; Permanent |
| Cable length | |
| | |
| • shielded, max. | 200 m |
| | 200 m |
| • shielded, max. | 200 m Actual value encryption (successive approximation) |
| shielded, max. Analog value generation for the inputs | |
| shielded, max. Analog value generation for the inputs Measurement principle | |
| shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), | Actual value encryption (successive approximation) |
| shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. | Actual value encryption (successive approximation) 12 bit |
| shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable | Actual value encryption (successive approximation) 12 bit Yes; 2,5 / 16,6 / 20 ms |
| shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable permissible input frequency, max. | Actual value encryption (successive approximation) 12 bit Yes; 2,5 / 16,6 / 20 ms 400 Hz |
| shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable permissible input frequency, max. Time constant of the input filter | Actual value encryption (successive approximation) 12 bit Yes; 2,5 / 16,6 / 20 ms 400 Hz 0.38 ms |
| shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable permissible input frequency, max. Time constant of the input filter Basic execution time of the module (all | Actual value encryption (successive approximation) 12 bit Yes; 2,5 / 16,6 / 20 ms 400 Hz 0.38 ms |
| shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable permissible input frequency, max. Time constant of the input filter Basic execution time of the module (all channels released) | Actual value encryption (successive approximation) 12 bit Yes; 2,5 / 16,6 / 20 ms 400 Hz 0.38 ms |
| shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable permissible input frequency, max. Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs | Actual value encryption (successive approximation) 12 bit Yes; 2,5 / 16,6 / 20 ms 400 Hz 0.38 ms |
| Shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable permissible input frequency, max. Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), | Actual value encryption (successive approximation) 12 bit Yes; 2,5 / 16,6 / 20 ms 400 Hz 0.38 ms 1 ms |
| Shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable permissible input frequency, max. Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. | Actual value encryption (successive approximation) 12 bit Yes; 2,5 / 16,6 / 20 ms 400 Hz 0.38 ms 1 ms |
| shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable permissible input frequency, max. Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) | Actual value encryption (successive approximation) 12 bit Yes; 2,5 / 16,6 / 20 ms 400 Hz 0.38 ms 1 ms |
| Shielded, max. Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable permissible input frequency, max. Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time | Actual value encryption (successive approximation) 12 bit Yes; 2,5 / 16,6 / 20 ms 400 Hz 0.38 ms 1 ms 12 bit 1 ms |
| Analog value generation for the inputs Measurement principle Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Integration time, parameterizable permissible input frequency, max. Time constant of the input filter Basic execution time of the module (all channels released) Analog value generation for the outputs Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Conversion time (per channel) Settling time for resistive load | Actual value encryption (successive approximation) 12 bit Yes; 2,5 / 16,6 / 20 ms 400 Hz 0.38 ms 1 ms 12 bit 1 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 | Yes; Without compensation of the line resistances |
| connection | |
| • 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 | 0.06 % |
| input range), (+/-) | |
| 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 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 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 basic communication— S7 communication | No No |
| | |

| S7 communication, as server | No |
|---|--|
| — Equidistance | Yes |
| — SYNC/FREEZE | Yes |
| Activation/deactivation of DP slaves | Yes |
| Direct data exchange (slave-to-slave | Yes |
| communication) | |
| 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 | |
| | |

| Yes |
|--|
| Yes; Via CP and loadable FB |
| 180 kbyte; With PUT/GET |
| 64 byte |
| |
| Yes; Via CP and loadable FB |
| |
| 12 |
| 11 |
| 1 |
| 1 |
| 11 |
| 11 |
| 1 |
| 1 |
| 11 |
| 8 |
| 8 |
| 0 |
| |
| 8 |
| |
| 4 |
| 4; 1 fixed with integral CPU |
| |
| |
| |
| 12; Depending on the configured connections for PG/OP and S7 |
| basic communication |
| basic communication Yes |
| basic communication |
| basic communication Yes |
| basic communication Yes |
| basic communication Yes 40 |
| basic communication Yes 40 Yes |
| basic communication Yes 40 Yes Yes |
| basic communication Yes 40 Yes Yes |
| basic communication Yes 40 Yes Yes Yes 2 |
| basic communication Yes 40 Yes Yes Yes Yes |
| basic communication Yes 40 Yes Yes Yes 2 Yes Inputs, outputs, memory bits, DB, times, counters |
| yes 40 Yes Yes Yes Yes Inputs, outputs, memory bits, DB, times, counters 30 |
| basic communication Yes 40 Yes Yes Yes 2 Yes Inputs, outputs, memory bits, DB, times, counters 30 30 |
| |

| Diagnostic buffer | |
|--|-----------------------------------|
| • present | Yes |
| Number of entries, max. | 100 |
| — adjustable | No |
| | |
| Interrupts/diagnostics/status information Alarms | Yes |
| Alams | Tes |
| 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 | 165 |
| | Yes; common for analog I/O |
| Potential separation analog outputs | |
| between the channels | No Van |
| 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 electri | city |
|--|--|
| Interference immunity against discharge of | Yes; ±6 kV contact discharge acc. to IEC 61000-4-2, ESD; ±8 kV |
| static electricity acc. to IEC 61000-4-2 | air discharge acc. to IEC 61000-4-2, ESD |
| Interference immunity against high-frequency electroma | agnetic fields |
| Interference immunity against high-frequency | Yes; 10 V/m, with 80% amplitude modulation at 1 kHz, 80 MHz to |
| radiation acc. to IEC 61000-4-3 | 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 | |
| Interference immunity on supply lines acc. to IEC 61000-4-4 | Yes |
| 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 | |
| • on the supply lines acc. to IEC 61000-4-5 | Yes; Surge measurements with additional protection elements: ±7 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 distur | bance induced by high-frequency fields |
| 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 | |
| • Limit class A, for use in industrial areas | Yes |
| Degree and class of protection | |
| Degree of protection acc. to EN 60529 | |
| • IP20 | Yes; Housing |
| • 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 | |
| • 45 degree installation, min. | 0 °C |
| • 45 degree installation, max. | 45 °C |
| • horizontal installation, min. | 0 °C |
| • horizontal installation, max. | 40 °C |
| • vertical installation, min. | 0 °C |
| • vertical installation, max. | 50 °C |
| Ambient temperature during storage/transportation | |
| • min. | -20 °C |
| • max. | 70 °C |
| Air pressure acc. to IEC 60068-2-13 | |

| Operation, min. | 795 hPa |
|--|---|
| Operation, max. | 1 080 hPa |
| 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/s² (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/s2 (15 g), 11 ms, 18 shocks |
| Storage/transport, tested acc. to IEC 60068-2- | Yes; 250 m/s² (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 | |
| Mechanics/material | |
| Service life | |
| | 1 000 000 |
| Service life | 1 000 000 |
| Service life • Number of operating cycles, keys | 1 000 000 260 mm |
| Service life • Number of operating cycles, keys Dimensions | |
| Service life • Number of operating cycles, keys Dimensions Width | 260 mm |
| Service life • Number of operating cycles, keys Dimensions Width Height | 260 mm 274 mm |
| Service life • Number of operating cycles, keys Dimensions Width Height Depth | 260 mm 274 mm 80 mm |
| Service life • Number of operating cycles, keys Dimensions Width Height Depth Mounting cutout, width | 260 mm 274 mm 80 mm 231 mm |
| Service life • Number of operating cycles, keys Dimensions Width Height Depth Mounting cutout, width Mounting cutout, height | 260 mm 274 mm 80 mm 231 mm |