SIEMENS

Data sheet



SIMATIC S7-400, CPU 414-3 PN/DP Central processing unit with: Work memory 4 MB, (2 MB code, 2 MB data), interfaces 1st interface MPI/DP 12 Mbit/s, (X1), 2nd interface Ethernet/PROFINET (X5) 3rd interface IF 964-DP plug-in (IF1)

| General information | |
|---|--|
| Product type designation | CPU 414-3 PN/DP |
| HW functional status | 01 |
| Firmware version | V7.0 |
| Product function | |
| Isochronous mode | Yes; Via PROFIBUS DP or PROFINET interface |
| Engineering with | |
| Programming package | STEP 7 V5.5 or higher with HSP 262 |
| CiR - Configuration in RUN | |
| CiR synchronization time, basic load | 100 ms |
| CiR synchronization time, time per I/O byte | 15 μs |
| Supply voltage | |
| Rated value (DC) | Power supply via system power supply |
| Input current | |
| from backplane bus 5 V DC, typ. | 1.3 A |
| from backplane bus 5 V DC, max. | 1.6 A |
| from backplane bus 24 V DC, max. | 300 mA; 150 mA per DP interface |
| from interface 5 V DC, max. | 90 mA; At each DP interface |
| Power loss | |
| Power loss, typ. | 6.5 W |
| Power loss, max. | 8 W |
| Memory | |
| Type of memory | RAM |
| Work memory | |
| • integrated | 4 Mbyte |
| integrated (for program) | 2 Mbyte |
| integrated (for data) | 2 Mbyte |
| expandable | No |
| Load memory | |
| expandable FEPROM | Yes; with Memory Card (FLASH) |
| expandable FEPROM, max. | 64 Mbyte |
| integrated RAM, max. | 512 kbyte |
| • expandable RAM | Yes; with Memory Card (RAM) |
| expandable RAM, max. | 64 Mbyte |
| Backup | |
| • present | Yes |
| with battery | Yes; all data |
| without battery | No |
| Battery | |
| Backup battery | |

| Backup current, typ. | 180 μA; up to 40 °C |
|---|---|
| Backup current, max. Dackup time may. | 850 µA |
| Backup time, max. | Dealt with in the module data manual with the secondary conditions and the factors of influence |
| Feeding of external backup voltage to CPU | 5 V DC to 15 V DC |
| CPU processing times | |
| for bit operations, typ. | 18.75 ns |
| for word operations, typ. | 18.75 ns |
| for fixed point arithmetic, typ. | 18.75 ns |
| for floating point arithmetic, typ. | 37.5 ns |
| CPU-blocks | |
| DB | |
| Number, max. | 6 000; Number range: 1 to 16000 |
| • Size, max. | 64 kbyte |
| FB | 0.000 11 1 0.000 |
| • Number, max. | 3 000; Number range: 0 to 7999 |
| • Size, max. | 64 kbyte |
| FC Number may | 3 000: Number range: 0 to 7000 |
| Number, max.Size, max. | 3 000; Number range: 0 to 7999 64 kbyte |
| OB | OT NOYIO |
| Number, max. | see instruction list |
| • Size, max. | 64 kbyte |
| Number of free cycle OBs | 1; OB 1 |
| Number of time alarm OBs | 4; OB 10-13 |
| Number of delay alarm OBs | 4; OB 20-23 |
| Number of cyclic interrupt OBs | 4; OB 32, 33, 34, 35 (shortest cycle that can be set = 500 μs) |
| Number of process alarm OBs | 4; OB 40-43 |
| Number of DPV1 alarm OBs | 3; OB 55-57 |
| Number of isochronous mode OBs | 3; OB 61-63 |
| Number of multicomputing OBs | 1; OB 60 |
| Number of background OBs | 1; OB 90 |
| Number of startup OBs | 3; OB 100-102 |
| Number of asynchronous error OBs | 9; OB 80-88 |
| Number of synchronous error OBs | 2; OB 121, 122 |
| Nesting depth | |
| per priority class | 24 |
| additional within an error OB | 1 |
| Counters, timers and their retentivity | |
| S7 counter | |
| • Number | 2 048 |
| Retentivity | Von |
| — adjustable — preset | Yes Z 0 to Z 7 |
| — preset Counting range | 201021 |
| — lower limit | 0 |
| — upper limit | 999 |
| IEC counter | |
| • present | Yes |
| • Type | SFB |
| • Number | Unlimited (limited only by RAM capacity) |
| S7 times | |
| Number | 2 048 |
| Retentivity | |
| — adjustable | Yes |
| — preset | No times retentive |
| 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. | Total working and load memory (with backup battery) |
| Flag | |
| • Size, max. | 8 kbyte; Size of bit memory address area |
| Retentivity available | Yes |
| Retentivity preset | MB 0 to MB 15 |
| Number of clock memories | 8; in 1 memory byte |
| Local data | |
| adjustable, max. | 16 kbyte |
| • preset | 8 kbyte |
| Address area | |
| I/O address area | |
| Inputs | 8 kbyte |
| Outputs | 8 kbyte |
| Process image | |
| Inputs, adjustable | 8 kbyte |
| Outputs, adjustable | 8 kbyte |
| Inputs, default | 256 byte |
| Outputs, default | 256 byte |
| consistent data, max. | 244 byte |
| Access to consistent data in process image | Yes |
| Subprocess images | |
| Number of subprocess images, max. | 15 |
| Digital channels | |
| Inputs | 65 536 |
| — of which central | 65 536 |
| Outputs | 65 536 |
| — of which central | 65 536 |
| Analog channels | |
| Inputs | 4 096 |
| — of which central | 4 096 |
| Outputs | 4 096 |
| — of which central | 4 096 |
| Hardware configuration | |
| Number of expansion units, max. | 21 |
| connectable OPs | 63 |
| Multicomputing | Yes; 4 CPUs max. (with UR1 or UR2) |
| Interface modules | |
| Number of connectable IMs (total), max. | 6 |
| Number of connectable IM 460s, max. | 6 |
| Number of connectable IM 463s, max. | 4; IM 463-2 |
| Number of DP masters | |
| • integrated | 1 |
| • via CP | 10; CP 443-5 Extended |
| via IM 467 | 4 |
| Mixed mode IM + CP permitted | No; IM 467 cannot be used jointly with CP 443-5 Ext. or CP 443-1 in PROFINET IO mode |
| via interface module | 1; IF 964-DP |
| Number of pluggable S5 modules (via adapter capsule in | 6 |
| central device), max. | |
| Number of IO Controllers | |
| • integrated | 1 |
| • via CP | 4; Max. 4 in the central controller; no mixed operation of different CP 443-1 types in PROFINET IO mode |
| Number of operable FMs and CPs (recommended) | types in FIVOI INCE TO THOUG |
| | Limited by number of slots and number of connections |
| ► FM◆ CP, PtP | Limited by number of slots and number of connections CP 440: Limited by number of slots; CP 441: Limited by number of slots and number of connections |
| PROFIBUS and Ethernet CPs | 14; In total max. 10 CPs as DP master and PROFINET controller, of which up to 10 IMs or CPs as DP master and up to 4 CPs as PROFINET controller |
| | to 10 miles of of 3 de Dr. master and up to 4 of 3 de FROFINET CONTINUE |



| Slots | |
|---|---|
| • required slots | 2 |
| Time of day | |
| Clock | |
| Hardware clock (real-time) | Yes |
| retentive and synchronizable | Yes |
| Resolution | 1 ms |
| • Deviation per day (buffered), max. | 1.7 s; Power off |
| Deviation per day (unbuffered), max. | 8.6 s; For power On |
| Operating hours counter | |
| Number | 16 |
| Number/Number range | 0 to 15 |
| Range of values | SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours |
| Granularity | 1 h |
| retentive | Yes |
| Clock synchronization | |
| • supported | Yes |
| to MPI, master | Yes |
| ● to MPI, slave | Yes |
| • to DP, master | Yes |
| • to DP, slave | Yes |
| • in AS, master | Yes |
| • in AS, slave | Yes |
| on Ethernet via NTP to UE 004 DB | Yes; As client |
| • to IF 964 DP | Yes |
| Time difference in system when synchronizing via | 10 mg |
| Ethernet, max. MPI max. | 10 ms |
| MPI, max. Interfaces | 200 ms |
| | 1 v MDI/DDOEIRI IS DD. 1 v DDOEINET (2 notto), 1 v DDOEIRI IS DD |
| Interfaces/bus type | 1 x MPI/PROFIBUS DP, 1 x PROFINET (2 ports), 1 x PROFIBUS DP (optionally pluggable) |
| Number of RS 485 interfaces | 1; Combined MPI / PROFIBUS DP |
| Number of other interfaces | 1; PROFIBUS DP with IF 964-DP (plug-in option; MLFB: 6ES7964-2AA04- |
| | 0AB0) |
| 1. Interface | MANAGERINA |
| Interface type | MPI/PROFIBUS DP |
| Isolated | Yes |
| Interface types | Ven |
| RS 485 Output current of the interface, may | Yes |
| Output current of the interface, max. Protocols | 150 mA |
| Protocols • MPI | Vac |
| PROFIBUS DP master | Yes Yes |
| PROFIBUS DP master PROFIBUS DP slave | Yes |
| MPI | 163 |
| Number of connections | 32; If a diagnostics repeater is used on the line, the number of connection |
| • Number of conficultions | resources on the line is reduced by 1 |
| • Transmission rate, max. | 12 Mbit/s |
| Services | |
| — PG/OP communication | Yes |
| — Routing | Yes |
| Global data communication | Yes |
| S7 basic communication | Yes |
| — S7 communication | Yes |
| S7 communication, as client | Yes |
| — S7 communication, as server | Yes |
| PROFIBUS DP master | |
| Number of connections, max. | 16; If a diagnostics repeater is used on the line, the number of connection |
| • Transmission rate may | resources on the line is reduced by 1 |
| Transmission rate, max.Number of DP slaves, max. | 12 Mbit/s 32 |
| Services | V2 |
| OCI VICES | |



| — PG/OP communication | Yes |
|---|---|
| | |
| — Routing | Yes; S7 routing |
| — Global data communication | No |
| — S7 basic communication | Yes |
| — S7 communication | Yes |
| — S7 communication, as client | Yes |
| — S7 communication, as server | Yes |
| — Equidistance | Yes |
| — Isochronous mode | Yes |
| — SYNC/FREEZE | Yes |
| Activation/deactivation of DP slaves | Yes |
| — Direct data exchange (slave-to-slave communication) | Yes |
| — DPV1 | Yes |
| Address area | 163 |
| — Inputs, max. | 2 kbyte |
| — Outputs, max. | 2 kbyte |
| User data per DP slave | 2 kbyte |
| — User data per DP slave, max. | 244 hyto |
| • | 244 byte |
| — Inputs, max. | 244 byte |
| — Outputs, max. | 244 byte 244 |
| — Slots, max. | |
| — per slot, max. PROFIBUS DP slave | 128 byte |
| | 40 |
| Number of connections CSD file | 16 |
| • GSD file | http://support.automation.siemens.com/WW/view/en/113652 |
| Transmission rate, max. | 12 Mbit/s |
| automatic baud rate search | No |
| Address area, max. | 32; Virtual slots |
| User data per address area, max. | 32 byte |
| — of which consistent, max. | 32 byte |
| Services | Voca with interfere active |
| — PG/OP communication | Yes; with interface active |
| — Routing | Yes; with interface active |
| — Global data communication | No |
| — S7 basic communication | No V |
| — S7 communication | Yes |
| — S7 communication, as client | Yes |
| — S7 communication, as server | Yes |
| — Direct data exchange (slave-to-slave communication) | No |
| — DPV1 | No |
| Transfer memory | 10 |
| — Inputs | 244 byte |
| — Outputs | 244 byte |
| 2. Interface | 2110,10 |
| Interface type | PROFINET |
| Isolated | Yes |
| automatic detection of transmission rate | Yes; Autosensing |
| Autonegotiation | Yes |
| Autoriossing | Yes |
| Change of IP address at runtime, supported | Yes; Assignment by higher-level IO-Controller or by the user program with |
| Change of it address at fullulite, supported | SFB104 "IP_CONF" |
| Interface types | |
| RJ 45 (Ethernet) | Yes |
| Number of ports | 2 |
| integrated switch | Yes |
| Protocols | |
| PROFINET IO Controller | Yes |
| PROFINET IO Device | Yes |
| PROFINET CBA | Yes |
| | |
| PROFIBUS DP master | No |



| PROFIBUS DP slave | No |
|---|--|
| Open IE communication | Yes |
| Web server | Yes |
| Point-to-point connection | No |
| Media redundancy | Yes |
| PROFINET IO Controller | |
| Transmission rate, max. | 100 Mbit/s |
| Services | |
| — PG/OP communication | Yes |
| — S7 communication | Yes |
| — Isochronous mode | Yes; Only with IRT and the High Performance option |
| — Shared device | Yes |
| — Prioritized startup | Yes |
| Number of IO devices with prioritized startup, max. | 32 |
| Number of connectable IO Devices, max. | 256 |
| Of which IO devices with IRT, max. | 64 |
| — of which in line, max. | 64 |
| Number of IO Devices with IRT and the option "high flexibility" | 256 |
| — of which in line, max. | 61 |
| Number of connectable IO Devices for RT, max. | 256 |
| — of which in line, max. | 256 |
| Activation/deactivation of IO Devices | Yes |
| Number of IO Devices that can be simultaneously activated/deactivated, max. | 8 |
| IO Devices changing during operation (partner ports), supported | Yes |
| Number of IO Devices per tool, max. | 8; 8 parallel calls of the SFC 12 "D_ACT_DP" possible per line. Max. 32 IO Devices changing during operation (partner ports) are supported |
| Device replacement without swap medium | Yes |
| Send cycles | 250 μs, 500 μs, 1 ms, 2 ms, 4 ms additionally with IRT with high performance: |
| — Updating time | 250 μs to 4 ms in 125 μs frame 250 μs to 512 ms; minimum value depends on preset communication share for PROFINET IO, on the number of IO Devices and on the amount of configured user data, see PROFINET system description |
| Address area | doct data, see From the Foydern description |
| — Inputs, max. | 8 kbyte |
| — Outputs, max. | 8 kbyte |
| User data consistency, max. | 1 024 byte |
| PROFINET IO Device | . 02 : 2,10 |
| Services | |
| — PG/OP communication | Yes |
| — S7 communication | Yes |
| Isochronous mode | No |
| — IRT | Yes |
| Prioritized startup | Yes |
| — Shared device | Yes |
| Number of IO Controllers with shared device, max. | 2 |
| Transfer memory | |
| — Inputs, max. | 1 440 byte; Per IO Controller with shared device |
| — Outputs, max. | 1 440 byte; Per IO Controller with shared device |
| — Outputs, max. Submodules | 1 110 Syto, 1 of 10 Controlled With Shared device |
| — Number, max. | 64 |
| Number, max. User data per submodule, max. | 1 024 byte |
| — Oser data per submodule, max. PROFINET CBA | 1 024 Dylic |
| | Yes |
| acyclic transmission cyclic transmission | |
| cyclic transmission Open IF communication | Yes |
| Open IE communication | 62 |
| Number of connections, max.Local port numbers used at the system end | 62 0, 20, 21, 25, 80, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, |
| Keep-alive function, supported | 65535 Yes |
| 3. Interface | |
| | |



| Interface type | Dividable interface medula (IE) |
|---|---|
| Interface type Plug in interface modules | Pluggable interface module (IF) IF 964-DP (MLFB: 6ES7964-2AA04-0AB0) |
| Plug-in interface modules | Yes |
| Isolated | |
| automatic detection of transmission rate | No |
| Interface types | Voe |
| • RS 485 | Yes |
| Output current of the interface, max. Protocols | 150 mA |
| Protocols | Ni- |
| • MPI | No |
| PROFIBUS DP master | Yes |
| PROFIBUS DP slave | Yes |
| PROFIBUS DP master | 40 |
| Number of connections, max. | 16 |
| Transmission rate, max. | 12 Mbit/s |
| Number of DP slaves, max. | 96 |
| Services | |
| PG/OP communication | Yes |
| — Routing | Yes; S7 routing |
| Global data communication | No |
| S7 basic communication | Yes |
| — S7 communication | Yes |
| S7 communication, as client | Yes |
| S7 communication, as server | Yes |
| — Equidistance | Yes |
| Isochronous mode | Yes |
| — SYNC/FREEZE | Yes |
| Activation/deactivation of DP slaves | Yes |
| Direct data exchange (slave-to-slave communication) | Yes |
| — DPV0 | Yes |
| — DPV1 | Yes |
| Address area | |
| — Inputs, max. | 6 kbyte |
| — Outputs, max. | 6 kbyte |
| User data per DP slave | |
| User data per DP slave, max. | 244 byte |
| — Inputs, max. | 244 byte |
| — Outputs, max. | 244 byte |
| — Slots, max. | 244 |
| — per slot, max. | 128 byte |
| PROFIBUS DP slave | |
| Number of connections | 16 |
| GSD file | http://support.automation.siemens.com/WW/view/en/113652 |
| | |
| Transmission rate, max. | 12 Mbit/s |
| Transmission rate, max.automatic baud rate search | |
| | 12 Mbit/s |
| automatic baud rate search | 12 Mbit/s No |
| automatic baud rate searchAddress area, max. | 12 Mbit/s No 32; Virtual slots |
| automatic baud rate searchAddress area, max.User data per address area, max. | 12 Mbit/s No 32; Virtual slots 32 byte |
| automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. | 12 Mbit/s No 32; Virtual slots 32 byte |
| automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services | 12 Mbit/s No 32; Virtual slots 32 byte 32 byte |
| automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing | 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes Yes; with interface active |
| automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication | 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes Yes; with interface active No |
| automatic baud rate search Address area, max. User data per address area, max. of which consistent, max. Services PG/OP communication Routing Global data communication S7 basic communication | 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes Yes; with interface active No No |
| automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication | 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes Yes; with interface active No No Yes |
| automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client | 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes Yes; with interface active No No Yes Yes |
| automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server | 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes Yes; with interface active No No Yes Yes Yes Yes |
| automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client | 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes Yes; with interface active No No Yes Yes |
| automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave | 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes Yes; with interface active No No Yes Yes Yes Yes |
| automatic baud rate search Address area, max. User data per address area, max. — of which consistent, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication, as client S7 communication, as server Direct data exchange (slave-to-slave communication) | 12 Mbit/s No 32; Virtual slots 32 byte 32 byte Yes Yes; with interface active No No Yes Yes Yes Yes Yes No |



| — Outputs | 244 byte |
|--|--|
| Protocols | |
| Redundancy mode | |
| Media redundancy | |
| Switchover time on line break, typ. | 200 ms |
| Number of stations in the ring, max. | 50 |
| SIMATIC communication | |
| S7 routing | Yes |
| Open IE communication | |
| • TCP/IP | Yes; via integrated PROFINET interface and loadable FBs |
| Number of connections, max. | 62 |
| — Data length, max. | 32 kbyte |
| several passive connections per port, supported | Yes |
| • ISO-on-TCP (RFC1006) | Yes; Via integrated PROFINET interface or CP 443-1 Adv. and loadable FBs |
| Number of connections, max. | 62 |
| — Data length, max. | 32 kbyte; 1 452 bytes via CP 443-1 Adv. |
| • UDP | Yes; via integrated PROFINET interface and loadable FBs |
| Number of connections, max. | 62 |
| — Data length, max. | 1 472 byte |
| Web server | Voc |
| supportedUser-defined websites | Yes Yes |
| | |
| Number of HTTP clients Isochronous mode. | 5 |
| Isochronous mode | Yes |
| Equidistance | 2 |
| Number of DP masters with isochronous mode | |
| User data per isochronous slave, max. | 244 byte 1 ms; 0.5 ms without use of SFC 126, 127 |
| shortest clock pulse max. cycle | 32 ms |
| communication functions / header | 32 1113 |
| PG/OP communication | Yes |
| Number of connectable OPs without message processing | 63 |
| Number of connectable OPs with message processing | 63; When using Alarm_S/SQ and Alarm_D/DQ |
| Data record routing | Yes |
| Global data communication | 166 |
| • supported | Yes |
| Number of GD loops, max. | 8 |
| Number of GD packets, transmitter, max. | 8 |
| Number of GD packets, receiver, max. | 16 |
| Size of GD packets, max. | 54 byte |
| Size of GD packet (of which consistent), max. | 1 variable |
| S7 basic communication | |
| communication function / S7 basic communication | Yes |
| User data per job, max. | 76 byte |
| User data per job (of which consistent), max. | 1 variable |
| S7 communication | |
| • supported | Yes |
| • as server | Yes |
| • as client | Yes |
| • User data per job, max. | 64 kbyte |
| User data per job (of which consistent), max. | 462 byte; 1 variable |
| S5 compatible communication | |
| • supported | Yes; Via FC AG_SEND and AG_RECV, max. via 10 CP 443-1 or 443-5 |
| • User data per job, max. | 8 kbyte |
| User data per job (of which consistent), max. | 240 byte |
| Number of simultaneous AG-SEND/AG-RECV orders per CRIL may: | 24/24 |
| CPU, max. | |
| Standard communication (FMS) | Voc. Via CP and leadable EP |
| supported communication functions / PROFINET CRA (with set target communication) | Yes; Via CP and loadable FB |
| communication functions / PROFINET CBA (with set target commu- | 20 % |
| - octpoint for the or o confindation load | 20 /0 |



| Number of remote interconnection partners | 32 |
|---|---|
| Number of functions, master/slave | 150 |
| Total of all master/slave connections | 4 500 |
| Data length of all incoming connections master/slave, max. | 45 000 byte |
| Data length of all outgoing connections master/slave, max. | 45 000 byte |
| Number of device-internal and PROFIBUS interconnections | 1 000 |
| Data length of device-internal und PROFIBUS interconnections, max. | 16 000 byte |
| Data length per connection, max. | 2 000 byte |
| performance data / PROFINET CBA / remote interconnection / | with acyclic transfer / header |
| — Sampling interval, min. | 200 ms; Depending on preset communication load, number of interconnections and data length used |
| Number of incoming interconnections | 250 |
| Number of outgoing interconnections | 250 |
| Data length of all incoming interconnections, max. | 8 000 byte |
| Data length of all outgoing interconnections, max. | 8 000 byte |
| — data volume / as user data for remote interconnections / in the case of acyclic transmission / with PROFINET CBA / per connection / maximum | 2 000 byte |
| performance data / PROFINET CBA / remote interconnection / | with cyclic transfer / header |
| Transmission frequency: Transmission interval, min. | 1 ms; Depending on preset communication load, number of interconnections |
| number of remote connections to input variables / | and data length used 300 |
| with PROFINET CBA / with cyclic transfer / maximum | 300 |
| — number of remote connections to output variables / with cyclical transfer / with PROFINET CBA / maximum data values / so year data for remote. | |
| data volume / as user data for remote interconnections with input variables / with cyclical transfer / with PROFINET CBA / maximum | 4 800 byte |
| data volume / as user data for remote interconnections with output variables / with cyclical transfer / with PROFINET CBA / maximum | 4 800 byte |
| data volume / as user data for remote interconnections / with cyclical transfer / with PROFINET CBA / per connection / maximum | 450 byte |
| performance data / PROFINET CBA / HMI variables via PROF | INET / acyclic / header |
| Number of stations that can log on for HMI variables (PN OPC/iMap) | 2x PN OPC/1x iMap |
| HMI variable updating | 500 ms |
| Number of HMI variables | 1 000 |
| Data length of all HMI variables, max. | 32 000 byte |
| performance data / PROFINET CBA / PROFIBUS proxy function | onality / header |
| — supported | Yes; 32 PROFIBUS slaves max. connectable |
| Data length per connection, max. | 240 byte; Slave-dependent |
| Number of connections | |
| overall | 64 |
| usable for PG communication | 63 |
| — reserved for PG communication | 1 |
| — adjustable for PG communication, max. | 0 |
| usable for OP communication | 63 |
| — reserved for OP communication | 1 |
| — adjustable for OP communication, max. | 0 |
| usable for S7 basic communication | 62 |
| — reserved for S7 basic communication | 0 |
| adjustable for S7 basic communication, max. | 0 |
| usable for S7 communication | 62 |
| — reserved for S7 communication | 0 |
| adjustable for S7 communication, max. | 0 |
| usable for routing | 31 |
| reserved for routing | 0 |
| — adjustable for routing, max. | 0 |
| S7 message functions | |
| Number of login stations for message functions, max. | 63; Max. 63 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 8 with Alarm, |
| | |

| Symbol-related messages | | Alarm 8 Alarm 8D Notify and Notify 9 (a.g. WinCC) |
|--|---|---|
| SCAM procedure Yes Program alarms Yes Process disgnoratic messages Yes simultaneously active Alarm-Slobick max. Annual Alarm-Slobick max. Process control messages Annual Alarm-Slobick max. Annual Ala | Symbol-related massages | Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC) |
| Process disposition messages smutaneously active alarm_SVSQ blocks or starm_DIDQ blocks Alarm & Bolocks - Ves - Number of instances for alarm 8 and \$7 communication blocks, max Process control messages - Process control messages - Ves - Wes - Number of archives that care log on simultaneously (SFB 37 - ART SERIO) - Start Serior Serior Messages - overal, max 1000 mg grid, max | | |
| Process displaced in messages Yes | · · | |
| Airwinder of instances for alarm 8 and 87 communication 1200 | <u> </u> | |
| Alarm 8-blocks Yes | | |
| Number of instances for alarm 8 and \$7 communication blocks, max. 9 preet, max. 16 preed. 9 preet, max. 9 preet, max | <u> </u> | |
| Diode, max | | |
| Process control messages Yes | | 1 200 |
| Number of archives that can log on simultaneously (SFB 37 AR, SEND) | • preset, max. | 300 |
| Number of archives that can log on simultaneously (SFB 37 AS_ESND) | Process control messages | Yes |
| Number of messages | Number of archives that can log on simultaneously (SFB 37 | 16 |
| • overall, max. 512 - in 100 ms grid, max. 128 - in 100 ms grid, max. 512 - in 100 ms grid, max. 512 - Number of additional values - with 100 ms grid, max. 1 - | | |
| In 100 ms grid, max. 128 | | 512 |
| in 1500 ms grid, max. 256 in 1000 ms grid, max. 512 with 100 ms grid, max. 1 with 100 ms grid, max. 10 status block Yes; Up to 16 simultaneously Shatus Scontrol Yes Number of breakpoints 16 Status Scontrol Yes 1 variables Yes; Up to 16 variable tables variables Input Scoupuls, memory bils, DBs, distributed I/Os, timers, counters variables Input 1 | | |
| with 100 ms grid, max | - | 256 |
| Number of additional values | | |
| • with 100 ms grid, max. 1 • with 500, 1000 ms grid, max. 10 \$ct commissioning functions Yes; Up to 16 simultaneously Status block Yes; Up to 16 simultaneously Shrigle step Yes Number of breakpoints 16 Status/control **Status/control variables • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters • Number of variables, max. 70; Status/control • Forcing Yes • Forcing, variables Inputs/outputs, bit memories, distributed I/Os • Number of variables, max. 256 • Number of variables, max. 250 • Number of variables, max. 256 • CE max 26 CSA approval. Yes <td< td=""><td>· · · · · · · · · · · · · · · · · · ·</td><td></td></td<> | · · · · · · · · · · · · · · · · · · · | |
| with 500, 1000 ms grid, max. 10 | | 1 |
| Status block Yes; Up to 16 simultaneously Single step Yes Number of breakpoints 16 Status/control Status/control variables Yes; Up to 16 variable tables Variables Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Number of variables, max. 70: Status/control Forcing Yes Inputs/outputs, bit memories, distributed I/Os Forcing, variables Yes Forcing, varia | | |
| Status block Yes Up to 16 simultaneously Single step Yes | - | |
| Single step Yes | | Yes: Up to 16 simultaneously |
| Number of breakpoints | | |
| Status/control Status/control variable Status/control variables Variables Number of variables, max. Forcing | | |
| Status/control variable Variables Number of variables, max. Forcing Forcing Forcing Forcing Forcing, Yes Forcing, Ves Forcing, Variables, max. 256 Number of variables, max. 256 Number of variables, max. 256 Number of entries, max. 3 200 - adjustable - present - can be read out Ves Ves - can be read out Ves CSA approval CE mark Yes CSA approval UL approval Ves CULus Yes RCM (formerly C-TICK) KC approval A Yes LSEA (formerly Gost-R) Ves LSEA (formerly Gost-R) LSEA (for | | |
| Number of variables, max. 70, Status/control Forcing Forcing Forcing | | Vas: Lin to 16 variable tables |
| • Number of variables, max. 70; Status/control Forcing | | |
| Forcing | | |
| Forcing, variables Forcing, variables Forcing, variables Number of variables, max. Diagnostic buffer Present Yes Number of entries, max. 3 200 — adjustable — preset 120 Service data — adjustable — preset 120 Service data CE mark Ves CSA approvals, certificates CE mark Ves CSA approval Yes CULus Yes CULus Yes RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes EAC (formerly Gost-R) Ves EAC (formerly dost-R) Ves ATEX ATEX ATEX II 3G Ex nA IIC T4 Gc unbiguration software • STEP 7 Yes Configuration / programming / header • Command set see instruction list | | 70, Status/Control |
| | <u> </u> | Vac |
| Number of variables, max. 256 Diagnostic buffer | - | |
| Diagnostic buffer • present Yes • Number of entries, max. 3 200 — adjustable Yes — preset 120 Service data • can be read out Yes • CE mark Yes CE mark Yes CSA approvals, certificates UL approval Yes UL approval Yes CW (UL approval) Yes CW (Grmerly C-TICK) Yes KC approval Yes EAC (formerly Gost-R) Yes Use in hazardous areas • ATEX ATEX II 3G Ex nA IIC T4 Gc Immitted conditions Ambient temperature during operation • min. 0 ° C • max. 60 ° C Onfiguration / header • STEP 7 Yes configuration / programming / header • command set | <u>.</u> | |
| ● present Yes ● Number of entries, max. 3 200 — adjustable Yes — preset 120 Service data Ves CE mark Yes CSA approvals, certificates Ves UL approval Yes ULus Yes FM approval Yes CKOM (formerly C-TICK) Yes KC approval Yes EAC (formerly Gost-R) Yes Use in hazardous areas ATEX • ATEX ATEX II 3G Ex nA IIC T4 Gc Inbient conditions Ambient temperature during operation • min. 0 °C • max. 60 °C configuration / header STEP 7 Yes configuration / programming / header See instruction list | | 230 |
| • Number of entries, max. | · | Vac |
| — adjustable — preset 120 Service data | • | |
| — preset 120 | | |
| Service data can be read out can be read out standards, approvals, certificates CE mark CSA approval Ves UL approval Ves CULus Yes CMA (Formerly C-TICK) Yes EAC (formerly Gost-R) Use in hazardous areas ATEX ATEX ATEX ATEX (ATEX II 3G Ex nA IIC T4 Gc Indicate the max. o ° C onfiguration / header Configuration / programming / header o Command set see instruction list | • | |
| e can be read out tandards, approvals, certificates CE mark CSA approval UL approval Ves ULus FM approval RCM (formerly C-TICK) KC approval EAC (formerly Gost-R) Use in hazardous areas ● ATEX ATEX ATEX I 3G Ex nA IIC T4 Gc Indicates ATEX ATEX ATEX I 3G Ex nA IIC T4 Gc Indicates ATEX ATEX I 3G Ex nA IIC T4 Gc Indicates ATEX ATEX ATEX I 3G Ex nA IIC T4 Gc Indicates ATEX ATEX ATEX I 3G Ex nA IIC T4 GC Indicates ATEX ATEX ATEX I 3G Ex nA IIC T4 GC Indicates ATEX ATEX ATEX I 3G Ex nA IIC T4 GC Indicates ATEX ATEX ATEX I 3G Ex nA IIC T4 GC Indicates ATEX ATEX ATEX I 3G Ex nA IIC T4 GC Indicates ATEX | | 120 |
| CE mark Yes CSA approval Yes UL approval Yes ULLus Yes FM approval Yes RCM (formerly C-TICK) Yes EAC (formerly Gost-R) Yes EAC (formerly Gost-R) Yes ATEX ATEX ATEX ATEX II 3G Ex nA IIC T4 Gc mabient conditions Ambient temperature during operation • min. • max. • 60 °C onfiguration / header Configuration software • STEP 7 Yes configuration / programming / header • Command set See instruction list | | Ves |
| CE mark Yes CSA approval Yes UL approval Yes CULus Yes FM approval Yes RCM (formerly C-TICK) Yes EAC (formerly Gost-R) Yes EAC (formerly Gost-R) Yes Use in hazardous areas • ATEX ATEX ATEX ATEX II 3G Ex nA IIC T4 Gc mabient conditions Ambient temperature during operation • min. • max. • 60 °C onfiguration / header Configuration software • STEP 7 Yes configuration / programming / header • Command set see instruction list | | 103 |
| CSA approval UL approval Ves CULus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes EAC (formerly Gost-R) Use in hazardous areas • ATEX ATEX II 3G Ex nA IIC T4 Gc Ambient conditions Ambient temperature during operation • min. • min. • max. • 60 °C onfiguration / header Configuration software • STEP 7 Configuration / programming / header • Command set See instruction list | | Yes |
| UL approval cULus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes EAC (formerly Gost-R) Ves Use in hazardous areas • ATEX ATEX ATEX II 3G Ex nA IIC T4 Gc Ambient conditions Ambient temperature during operation • min. • min. • max. • 60 °C onfiguration / header Configuration software • STEP 7 Configuration / programming / header • Command set See instruction list | | |
| CULus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes EAC (formerly Gost-R) Yes Use in hazardous areas • ATEX ATEX ATEX II 3G Ex nA IIC T4 Gc Ambient conditions Ambient temperature during operation • min. 0 °C • max. 60 °C onfiguration / header Configuration software • STEP 7 Yes configuration / programming / header • Command set see instruction list | | |
| FM approval RCM (formerly C-TICK) Yes KC approval Yes EAC (formerly Gost-R) Use in hazardous areas ATEX ATEX II 3G Ex nA IIC T4 Gc ATEX II 3G Ex nA III CT 4 GC ATEX II 3G Ex nA IIC T4 GC ATEX II 3G Ex nA III CT 4 GC ATEX II 3G Ex nA III CT 4 GC ATEX II 3G Ex nA III CT 4 GC ATEX II 3G Ex nA III CT 4 GC ATEX II 3G Ex nA IIC | | |
| RCM (formerly C-TICK) KC approval EAC (formerly Gost-R) Use in hazardous areas • ATEX ATEX II 3G Ex nA IIC T4 Gc In min. • min. • min. • max. • fo °C • max. Configuration / header • STEP 7 Configuration / programming / header • Command set Yes Yes Yes ATEX II 3G Ex nA IIC T4 Gc ATEX II 3G | | |
| Yes | | |
| EAC (formerly Gost-R) Use in hazardous areas • ATEX ATEX II 3G Ex nA IIC T4 Gc Imbient conditions Ambient temperature during operation • min. • mix. • max. • 0°C • max. • o0°C Onfiguration / header • STEP 7 Yes configuration / programming / header • Command set see instruction list | | |
| Use in hazardous areas ATEX ATEX ATEX II 3G Ex nA IIC T4 Gc Imbient conditions Ambient temperature during operation In min. In max. In max | | |
| ● ATEX ATEX ATEX II 3G Ex nA IIC T4 Gc Imbient conditions Ambient temperature during operation ● min. 0 °C ● max. 60 °C Onfiguration / header Configuration software ● STEP 7 Yes configuration / programming / header ● Command set see instruction list | | 1 05 |
| Ambient conditions Ambient temperature during operation • min. • max. • 60 °C onfiguration / header Configuration software • STEP 7 configuration / programming / header • Command set see instruction list | | ATEV II 2C Ev pA IIC T4 Co |
| Ambient temperature during operation o min. o o C onfiguration / header Configuration software o STEP 7 Yes configuration / programming / header Command set see instruction list | | ATEA II 30 EX IIA IIO 14 00 |
| min. max. 60 °C onfiguration / header Configuration software STEP 7 Yes configuration / programming / header Command set see instruction list | | |
| ● max. 60 °C onfiguration / header Configuration software ● STEP 7 Yes configuration / programming / header ● Command set see instruction list | · · · · · · · · · · · · · · · · · · · | 0.00 |
| Configuration / header Configuration software STEP 7 Yes configuration / programming / header Command set see instruction list | | |
| Configuration software • STEP 7 Yes configuration / programming / header • Command set see instruction list | - | 00 °C |
| • STEP 7 Yes configuration / programming / header • Command set see instruction list | | |
| configuration / programming / header • Command set see instruction list | - | |
| Command set see instruction list | | Yes |
| | | |
| • Nesting levels 7 | | |
| | Nesting levels | 7 |



| Access to consistent data in process image | Yes |
|---|---|
| System functions (SFC) | see instruction list |
| System functions (OF S) System function blocks (SFB) | see instruction list |
| Programming language | See instruction list |
| — LAD | Yes |
| — FBD | Yes |
| — STL | Yes |
| — SCL | Yes |
| — CFC | Yes |
| — GRAPH | Yes |
| — GRAFTI — HiGraph® | Yes |
| configuration / programming / number of simultaneously ac | |
| — DPSYC FR | 2; SFC 11; per interface |
| — D_ACT_DP | 8; SFC 12; per interface |
| — D_ACT_DF — RD_REC | 8; SFC 59; per interface |
| — WR_REC | 8; SFC 58; per interface |
| — WR_PARM | 8; SFC 55; per interface |
| — PARM_MOD | 1; SFC 57; per interface |
| — WR_DPARM | 2; SFC 56; per interface |
| — WK_DFARWI — DPNRM DG | 8; SFC 13; per interface |
| — RDSYSST | 8: SFC 51 |
| — RDS1351 — DP_TOPOL | 1; SFC 103; per interface |
| configuration / programming / number of simultaneously ac | |
| — RDREC | |
| — WRREC | 8; SFB 52; per interface, but not more than 32 across all external interfaces |
| | 8; SFB 53; per interface, but not more than 32 across all external interfaces |
| Know-how protection | Yes |
| User program protection/password protection Block encryption | |
| | Yes; With S7 block Privacy |
| Dimensions | 50 |
| Width | 50 mm |
| Height | 290 mm |
| Depth | 219 mm |
| Weights | |
| Weight, approx. | 900 g |

last modified:

9/7/2023

