SIEMENS

## Data sheet 6ES7317-2FK13-0AB0


Figure similar

*** SPARE PART*** SIMATIC S7-300 CPU317F-2 PN/DP, CENTRAL PROCESSING UNIT WITH 1024 KBYTE WORKING MEMORY, 1. INTERFACE MPI/DP 12MBIT/S, 2. INTERFACE ETHERNET PROFINET, MICRO MEMORY CARD NECESSARY FOR USE WITH SOFTWARE OPTION S7 DISTRIBUTED SAFETY V5.4 OR HIGHER

| General information | |
|---|---|
| Hardware product version | 01 |
| Firmware version | V2.6 |
| Engineering with | |
| • Programming package | STEP 7 V5.4 SP2 or higher, S7 Distributed Safety V5.4 or higher |

| 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 |
| external protection for power supply lines (recommendation) | 2 A min. |

| Input current | |
|---|---|
| Current consumption (rated value) | 650 mA |
| Current consumption (in no-load operation), typ. | 100 mA |
| Inrush current, typ. | 2.5 A |
| $I^2t$ | 1 $A^2 \cdot s$ |

| | |
|---|---|
| **Power loss** | |
| Power loss, typ. | 3.5 W |
| **Memory** | |
| Work memory | |
| • integrated | 1 Mbyte; For program and data |
| • expandable | No |
| Load memory | |
| • Plug-in (MMC) | Yes |
| • Plug-in (MMC), max. | 8 Mbyte |
| • Data management on MMC (after last programming), min. | 10 y |
| Backup | |
| • present | Yes; Guaranteed by MMC (maintenance-free) |
| • without battery | Yes; Program and data |
| **CPU processing times** | |
| for bit operations, typ. | 0.05 µs |
| for bit operations, max. | 0.05 µs |
| for word operations, typ. | 0.2 µs |
| for fixed point arithmetic, typ. | 0.2 µs |
| for floating point arithmetic, typ. | 1 µs |
| **CPU-blocks** | |
| Number of blocks (total) | 2 048; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used. |
| DB | |
| • Number, max. | 2 047; Number band: 1 to 2047 |
| • Size, max. | 64 kbyte |
| FB | |
| • Number, max. | 2 048; Number range: 0 to 2047 |
| • Size, max. | 64 kbyte |
| FC | |
| • Number, max. | 2 048; Number range: 0 to 2047 |
| • Size, max. | 64 kbyte |
| OB | |
| • Size, max. | 64 kbyte |
| • Number of free cycle OBs | 1; OB 1 |
| • Number of time alarm OBs | 1; OB 10 |
| • Number of delay alarm OBs | 2; OB 20, 21 |
| • Number of cyclic interrupt OBs | 4; OB 32, 33, 34, 35 |
| • Number of process alarm OBs | 1; OB 40 |
| • Number of DPV1 alarm OBs | 3; OB 55, 56, 57 |
| • Number of isochronous mode OBs | 1; OB 61 |

| | |
|---|---|
| • Number of startup OBs | 1; OB 100 |
| • Number of asynchronous error OBs | 6; OB 80, 82, 83, 85, 86, 87 |
| • Number of synchronous error OBs | 2; OB 121, 122 |
| Nesting depth | |
| • per priority class | 16 |
| • additional within an error OB | 4 |

| Counters, timers and their retentivity | |
|---|---|
| S7 counter | |
| • Number | 512 |
| of which retentive without battery | |
| — can be set | Yes |
| — lower limit | 0 |
| — upper limit | 511 |
| — preset | 8 |
| Retentivity | |
| — adjustable | Yes |
| — lower limit | 0 |
| — upper limit | 511 |
| — preset | 8 |
| Counting range | |
| — can be set | Yes |
| — lower limit | 0 |
| — upper limit | 999 |
| IEC counter | |
| • present | Yes |
| • Type | SFB |
| • Number | Unlimited (limited only by RAM capacity) |
| S7 times | |
| • Number | 512 |
| of which retentive without battery | |
| — adjustable | Yes |
| — lower limit | 0 |
| — upper limit | 511 |
| Retentivity | |
| — adjustable | Yes |
| — lower limit | 0 |
| — upper limit | 511 |
| — 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 in total | All, max. 256 KB |
| Flag | |
| • Number, max. | 4 096 byte |
| • Retentivity available | Yes; From MB 0 to MB 4095 |
| • Retentivity preset | MB 0 to MB 15 |
| • Number of clock memories | 8; 1 memory byte |
| Data blocks | |
| • Number, max. | 2 047; from DB 1 to DB 2047 |
| • Size, max. | 64 kbyte |
| • Retentivity adjustable | Yes; via non-retain property on DB |
| • Retentivity preset | Yes |
| Local data | |
| • per priority class, max. | 1 024 byte |
| **Address area** | |
| I/O address area | |
| • Inputs | 8 kbyte |
| • Outputs | 8 kbyte |
| of which distributed | |
| — Inputs | 8 kbyte |
| — Outputs | 8 kbyte |
| Process image | |
| • Inputs | 2 048 byte |
| • Outputs | 2 048 byte |
| • Inputs, adjustable | 2 048 byte |
| • Outputs, adjustable | 2 048 byte |
| • Inputs, default | 1 024 byte |
| • Outputs, default | 1 024 byte |
| Digital channels | |
| • Inputs | 65 536 |
| — of which central | 1 024 |
| • Outputs | 65 536 |
| — of which central | 1 024 |
| Analog channels | |
| • Inputs | 4 096 |
| — of which central | 256 |
| • Outputs | 4 096 |

| | |
|---|---|
| — of which central | 256 |
| **Hardware configuration** | |
| Number of expansion units, max. | 3 |
| Number of DP masters | |
| • integrated | 1 |
| • via CP | 4 |
| Number of operable FMs and CPs (recommended) | |
| • FM | 8 |
| • CP, PtP | 8 |
| • CP, LAN | 10 |
| Rack | |
| • Racks, max. | 4 |
| • Modules per rack, max. | 8 |
| **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 | 4 |
| • Number/Number range | 0 to 3 |
| • Range of values | 0 to 2^31 hours (when using SFC 101) |
| • Granularity | 1 hour |
| • retentive | Yes; Must be restarted at each restart |
| Clock synchronization | |
| • supported | Yes |
| • to MPI, master | Yes |
| • to MPI, slave | Yes |
| • to DP, master | Yes; With DP slave only slave clock |
| • to DP, slave | Yes |
| • in AS, master | Yes |
| • in AS, slave | Yes |
| **Digital inputs** | |
| integrated channels (DI) | 0 |
| **Digital outputs** | |
| integrated channels (DO) | 0 |
| **Analog inputs** | |
| integrated channels (AI) | 0 |

| | |
|---|---|
| **Analog outputs** | |
| integrated channels (AO) | 0 |
| **Interfaces** | |
| Number of industrial Ethernet interfaces | 1 |
| Number of RS 485 interfaces | 2 |
| Number of RS 422 interfaces | 0 |
| **1. Interface** | |
| Interface type | Integrated RS 485 interface |
| Physics | RS 485 |
| Isolated | Yes |
| Power supply to interface (15 to 30 V DC), max. | 200 mA |
| **Functionality** | |
| • MPI | Yes |
| • PROFIBUS DP master | Yes |
| • PROFIBUS DP slave | Yes |
| • Point-to-point connection | No |
| **MPI** | |
| • Number of connections | 16 |
| • 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 | No |
| — S7 communication, as server | Yes |
| **DP master** | |
| • Transmission rate, max. | 12 Mbit/s |
| • Number of DP slaves, max. | 124 |
| **Services** | |
| — PG/OP communication | Yes |
| — Routing | Yes |
| — Global data communication | No |
| — S7 basic communication | Yes |
| — S7 communication | Yes |
| — S7 communication, as client | No |
| — S7 communication, as server | Yes |
| — Equidistance | Yes |
| — Isochronous mode | Yes; OB 61 |
| — SYNC/FREEZE | Yes |

| | |
|---|---|
| — Activation/deactivation of DP slaves | Yes |
| — DPV1 | Yes |
| DP slave | |
| • Transmission rate, max. | 12 Mbit/s |
| • automatic baud rate search | Yes; only with passive interface |
| • Address area, max. | 32 |
| • User data per address area, max. | 32 byte |
| Services | |
| — Routing | Yes; with interface active |
| — Global data communication | No |
| — S7 basic communication | Yes |
| — S7 communication | Yes |
| — S7 communication, as client | No |
| — S7 communication, as server | Yes |
| — Direct data exchange (slave-to-slave communication) | Yes |
| — DPV1 | No |
| Transfer memory | |
| — Inputs | 244 byte |
| — Outputs | 244 byte |
| **2. Interface** | |
| Interface type | PROFINET |
| Physics | Ethernet |
| Isolated | Yes |
| Power supply to interface (15 to 30 V DC), max. | 0 mA |
| automatic detection of transmission rate | Yes; 10/100 Mbit/s |
| Functionality | |
| • MPI | No |
| • PROFINET IO Controller | Yes; Firmware version V2.3 and higher |
| • PROFINET CBA | Yes |
| • PROFIBUS DP master | No |
| • PROFIBUS DP slave | No |
| • Point-to-point connection | No |
| PROFINET IO Controller | |
| • Transmission rate, max. | 100 Mbit/s |
| Services | |
| — PG/OP communication | Yes |
| — Routing | Yes |
| — S7 communication | Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32 |
| — Open IE communication | Yes; via TCP/IP |
| — Number of connectable IO Devices, max. | 128 |

| | |
|---|---|
| — Updating time | 1 to 512 ms (minimum value depends on communication share set for PROFINET I/O, on the number of I/O devices, and on the volume of configured user data) |
| Address area | |
| — Inputs, max. | 8 kbyte |
| — Outputs, max. | 8 kbyte |
| — User data consistency, max. | 256 byte |
| PROFINET CBA | |
| • acyclic transmission | Yes |
| • cyclic transmission | Yes |

| Communication functions | |
|---|---|
| PG/OP communication | Yes |
| Global data communication | |
| • supported | Yes |
| • Number of GD loops, max. | 8 |
| • Number of GD packets, max. | 8 |
| • Number of GD packets, transmitter, max. | 8 |
| • Number of GD packets, receiver, max. | 8 |
| • Size of GD packets, max. | 22 byte |
| • Size of GD packet (of which consistent), max. | 22 byte |
| S7 basic communication | |
| • supported | Yes |
| • User data per job, max. | 76 byte |
| • User data per job (of which consistent), max. | 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server) |
| S7 communication | |
| • supported | Yes |
| • as server | Yes |
| • as client | Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB |
| • User data per job, max. | See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication) |
| S5 compatible communication | |
| • supported | Yes; via CP and loadable FC |
| Open IE communication | |
| • TCP/IP | Yes; via integrated PROFINET interface and loadable FBs |
| — Number of connections, max. | 8 |
| — Data length, max. | 1 460 byte |
| PROFINET CBA (at set setpoint communication load) | |
| • Setpoint for the CPU communication load | 50 % |
| • Number of remote interconnection partners | 32 |
| • Number of functions, master/slave | 17 |

| | |
|---|---|
| • Total of all master/slave connections | 1 000 |
| • Data length of all incoming connections master/slave, max. | 4 000 byte |
| • Data length of all outgoing connections master/slave, max. | 4 000 byte |
| • Number of device-internal and PROFIBUS interconnections | 500 |
| • Data length of device-internal und PROFIBUS interconnections, max. | 4 000 byte |
| • Data length per connection, max. | 1 400 byte |
| Remote interconnections with acyclic transmission | |
| — Sampling frequency: Sampling time, min. | 500 ms |
| — Number of incoming interconnections | 100 |
| — Number of outgoing interconnections | 100 |
| — Data length of all incoming interconnections, max. | 2 000 byte |
| — Data length of all outgoing interconnections, max. | 2 000 byte |
| — Data length per connection, max. | 1 400 byte |
| Remote interconnections with cyclic transmission | |
| — Transmission frequency: Transmission interval, min. | 10 ms |
| — Number of incoming interconnections | 200 |
| — Number of outgoing interconnections | 200 |
| — Data length of all incoming interconnections, max. | 2 000 byte |
| — Data length of all outgoing interconnections, max. | 2 000 byte |
| — Data length per connection, max. | 450 byte |
| HMI variables via PROFINET (acyclic) | |
| — Number of stations that can log on for HMI variables (PN OPC/iMap) | 3; 2x PN OPC/1x iMap |
| — HMI variable updating | 500 ms |
| — Number of HMI variables | 200 |
| — Data length of all HMI variables, max. | 2 000 byte |
| PROFIBUS proxy functionality | |
| — supported | Yes |
| — Number of linked PROFIBUS devices | 16 |
| — Data length per connection, max. | 240 byte; Slave-dependent |
| Number of connections | |
| • overall | 32 |
| • usable for PG communication | 31 |
| — reserved for PG communication | 1 |

| | |
|---|---|
| — adjustable for PG communication, min. | 1 |
| — adjustable for PG communication, max. | 31 |
| • usable for OP communication | 31 |
| — reserved for OP communication | 1 |
| — adjustable for OP communication, min. | 1 |
| — adjustable for OP communication, max. | 31 |
| • usable for S7 basic communication | 30 |
| — reserved for S7 basic communication | 0 |
| — adjustable for S7 basic communication, min. | 0 |
| — adjustable for S7 basic communication, max. | 30 |

| S7 message functions | |
|---|---|
| Number of login stations for message functions, max. | 32; Depending on the configured connections for PG/OP and S7 basic communication |
| Process diagnostic messages | Yes |
| simultaneously active Alarm-S blocks, max. | 60 |

| 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 |
| • Forcing, variables | Inputs, outputs |
| • Number of variables, max. | 10 |
| Diagnostic buffer | |
| • present | Yes |
| • Number of entries, max. | 100 |
| — adjustable | No |

| Configuration | |
|---|---|
| Configuration software | |
| • STEP 7 | Yes; V5.3 SP3 and higher + HW update |
| 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 |

| Dimensions | |
|---|---|
| Width | 80 mm |
| Height | 125 mm |
| Depth | 130 mm |

| Weights | |
|---|---|
| Weight, approx. | 460 g |

**last modified:** 03/23/2017