SIEMENS

## Data sheet 6ES7151-7AB00-0AB0



*** Spare part *** SIMATIC DP, IM151-7 CPU FO for ET200S, RAM 48 KB (FW V1.13 or higher), with integrated PROFIBUS DP interface (FOC Simplex connector) as DP slave, without battery

| | |
|---|---|
| **General information** | |
| HW functional status | 04 |
| Firmware version | V1.1 |
| Engineering with | |
| ● Programming package | STEP 7 V5.1 or higher |
| **Supply voltage** | |
| Rated value (DC) | 24 V |
| permissible range, lower limit (DC) | 20.4 V |
| permissible range, upper limit (DC) | 28.8 V |
| Reverse polarity protection | Yes; against destruction |
| **Input current** | |
| Inrush current, max. | 3.5 A |
| from supply voltage 1L+, max. | 250 mA |
| **Output current** | |
| for backplane bus (5 V DC), max. | 700 mA |
| **Power loss** | |
| Power loss, typ. | 3.3 W |
| **Memory** | |
| Work memory | |
| ● integrated | 48 kbyte; as of FW V1.13 48 KB; previously 24 KB |
| ● expandable | No |
| Load memory | |
| ● Plug-in (MMC) | Yes |
| ● Plug-in (MMC), max. | 2 Mbyte |
| ● Data management on MMC (after last programming), min. | 10 a |
| Backup | |
| ● present | No |
| **CPU processing times** | |
| for bit operations, typ. | 0.3 µs |
| for word operations, typ. | 1 µs |
| for fixed point arithmetic, typ. | 2 µs |
| for floating point arithmetic, typ. | 50 µs |
| for timer/counter operations, typ. | 12 µs |
| **CPU-blocks** | |
| DB | |
| ● Number, max. | 127; Number range: 1 to 127 |
| ● Size, max. | 8 kbyte |
| FB | |
| ● Number, max. | 128; Number range: 0 to 127 |


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|---|---|
| ● Size, max. | 8 kbyte |
| FC | |
| ● Number, max. | 128; Number range: 0 to 127 |
| ● Size, max. | 8 kbyte |
| OB | |
| ● Size, max. | 8 kbyte |
| ● Number of free cycle OBs | 1; OB 1 |
| ● Number of time alarm OBs | 1; OB 10 |
| ● Number of delay alarm OBs | 1; OB 20 |
| ● Number of cyclic interrupt OBs | 1; OB 35 |
| ● Number of process alarm OBs | 1; OB 40 |
| ● Number of startup OBs | 1; OB 100 |
| ● Number of asynchronous error OBs | 4; OB 80, 82, 85, 86 |
| Nesting depth | |
| ● per priority class | 8 |
| ● additional within an error OB | 4 |
| **Counters, timers and their retentivity** | |
| S7 counter | |
| ● Number | 64 |
| Retentivity | |
| — adjustable | Yes |
| — preset | Z 0 to Z 7 |
| Counting range | |
| — adjustable | Yes |
| — lower limit | 0 |
| — upper limit | 999 |
| IEC counter | |
| ● present | Yes |
| ● Type | SFB |
| ● Number | Unlimited (limited only by RAM capacity) |
| S7 times | |
| ● Number | 128 |
| Retentivity | |
| — adjustable | Yes |
| — preset | No retentivity |
| Time range | |
| — lower limit | 10 ms |
| — upper limit | 9 990 s |
| IEC timer | |
| ● present | Yes |
| ● Type | SFB |
| ● Number | Unlimited (limited only by RAM capacity) |
| **Data areas and their retentivity** | |
| Retentive data area (incl. timers, counters, flags), max. | 4 736 byte |
| Flag | |
| ● Size, max. | 256 byte |
| ● Retentivity available | Yes; MB 0 to MB 255 |
| ● Retentivity preset | MB 0 to MB 15 |
| ● Number of clock memories | 8; 1 memory byte |
| Data blocks | |
| ● Retentivity adjustable | Yes; Max. 8 DB, 4096 data bytes in total |
| ● Retentivity preset | No retentivity |
| Local data | |
| ● per priority class, max. | 256 byte; Local data max.: 1536 byte |
| **Address area** | |
| I/O address area | |
| ● Inputs | 1 536 byte |
| ● Outputs | 1 536 byte |
| of which distributed | |
| — Inputs | 64 byte |


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| — Outputs | 64 byte |
| Process image | |
| ● Inputs | 128 byte |
| ● Outputs | 128 byte |
| Digital channels | |
| ● Inputs | 248; max. |
| ● Outputs | 248; max. |
| Analog channels | |
| ● Inputs | 124; max. |
| ● Outputs | 124; max. |
| Addressing volume | |
| ● Inputs | 244 byte |
| ● Outputs | 244 byte |
| **Hardware configuration** | |
| connectable programming devices/PCs | PGs/OPs with STEP 7 connectable via PROFIBUS interface |
| Number of modules per system, max. | 63 |
| Mounting rail | |
| ● Number of mounting rails that can be used | 1 |
| ● Length of mounting rail, max. | 2 m; Station width: ≤ 1 m or < 2 m |
| **Time of day** | |
| Clock | |
| ● Software clock | Yes |
| Operating hours counter | |
| ● Number | 0; No |
| **Interfaces** | |
| Interfaces/bus type | 1x PROFIBUS DP |
| **1. Interface** | |
| Interface type | Fiber-optic interface and integrated RS 485 interface for programming |
| Isolated | No |
| Interface types | |
| ● RS 485 | Yes |
| ● Output current of the interface, max. | 80 mA; With RS 485 |
| Protocols | |
| ● MPI | No |
| ● PROFIBUS DP device | Yes |
| ● Point-to-point connection | No |
| 1st interface / PROFIBUS DP device / header | |
| ● Number of connections | 11 |
| ● GSD file | http://www.siemens.com/profibus-gsd |
| ● Transmission rate, max. | 12 Mbit/s |
| ● Address area, max. | 32 |
| ● User data per address area, max. | 32 byte; Up to max. size of the transfer memory |
| Services | |
| — PG/OP communication | Yes |
| — Routing | No |
| — Global data communication | No |
| — S7 basic communication | Yes; as server |
| — S7 communication | Yes; as server |
| — S7 communication, as client | No |
| — S7 communication, as server | Yes |
| — Direct data exchange (slave-to-slave communication) | Yes |
| Transfer memory | |
| — Inputs | 64 byte |
| — Outputs | 64 byte |
| **Interface types** | |
| RS 485 | |
| ● Cable length, max. | 1 000 m; 100 to 1 000 m (depending on transmission speed), without repeaters |
| **Protocols** | |
| Open IE communication | |
| ● TCP/IP | No |


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|---|---|
| PROFIBUS DP | |
| ● Number of node addresses, max. | 1 to 125 permitted |
| **communication functions / header** | |
| PG/OP communication | Yes |
| Global data communication | |
| ● supported | No |
| S7 basic communication | |
| ● supported | Yes; as server |
| ● User data per job, max. | 76 byte |
| ● User data per job (of which consistent), max. | 32 byte; with I_PUT/I_GET |
| S7 communication | |
| ● supported | Yes |
| ● as server | Yes |
| ● as client | No |
| ● User data per job, max. | 160 kbyte |
| ● User data per job (of which consistent), max. | 32 byte |
| S5 compatible communication | |
| ● supported | No |
| Standard communication (FMS) | |
| ● supported | No |
| **S7 message functions** | |
| Process diagnostic messages | Yes; ALARM_S, ALARM_SQ |
| **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. | |
| — 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 |
| **Isolation** | |
| Isolation tested with | 500 V DC |
| **Degree and class of protection** | |
| IP degree of protection | IP20 |
| **Ambient conditions** | |
| Ambient temperature during operation | |
| ● min. | 0 °C |
| ● max. | 60 °C |
| **configuration / header** | |
| Configuration software | |
| ● STEP 7 | Yes; as of V5.1 |
| ● STEP 7 Lite | Yes; V2.0 or higher |
| configuration / programming / header | |
| ● Command set | Binary logic operations, bracketed operations, result allocation, saving, counting, loading, transferring, comparing, shifting, rotating, complementation, calling blocks, fixed point arithmetic, floating point arithmetic, jump functions |
| ● Nesting levels | 8 |
| ● Program organization | Linear, structured |
| ● System functions (SFC) | Interrupt and error processing, copy data, clock functions, diagnostic functions, module parameterization, operating mode transitions |
| Programming language | |


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|---|---|
| — LAD | Yes |
| — FBD | Yes |
| — STL | Yes |
| — SCL | Yes |
| Software libraries | |
| — Process diagnostics | Yes |
| — Software controller | Yes; depending on the required memory space and the resulting execution time |
| Know-how protection | |
| ● User program protection/password protection | Yes |
| programming / cycle time monitoring / header | |
| ● lower limit | 1 ms |
| ● upper limit | 6 000 ms |
| ● adjustable | Yes |
| ● preset | 150 ms |
| **Dimensions** | |
| Width | 60 mm |
| Height | 119.5 mm |
| Depth | 75 mm |
| **Weights** | |
| Weight, approx. | 200 g |

**Classifications**

| | Version | Classification |
|---|---|---|
| eClass | 14 | 27-24-26-07 |
| eClass | 12 | 27-24-26-07 |
| eClass | 9.1 | 27-24-26-07 |
| eClass | 9 | 27-24-26-07 |
| eClass | 8 | 27-24-26-07 |
| eClass | 7.1 | 27-24-26-07 |
| eClass | 6 | 27-24-26-07 |
| ETIM | 9 | EC001603 |
| ETIM | 8 | EC001603 |
| ETIM | 7 | EC001603 |
| IDEA | 4 | 3565 |
| UNSPSC | 15 | 32-15-17-05 |

**Approvals / Certificates**

| General Product Approval | EMV | For use in hazardous locations | | |
|---|---|---|---|---|
| UL, RCM | RCM | ATEX | FM | ATEX |

| For use in hazardous locations | Marine / Shipping | | |
|---|---|---|---|
| UL, IECEx | ABS | LRS | |

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