

# SIEMENS

## Product data sheet

**6ES7314-1AG14-0AB0**


SIMATIC S7-300,  
CPU 314 CPU WITH MPI INTERFACE,  
INTEGRATED 24V DC POWER SUPPLY,  
128 KBYTE WORKING MEMORY,  
MICRO MEMORY CARD NECESSARY

### General information

|                          |      |
|--------------------------|------|
| Hardware product version | 01   |
| Firmware version         | V3.3 |

### Engineering with

|                     |                                                                        |
|---------------------|------------------------------------------------------------------------|
| Programming package | STEP 7 V5.5 + SP1 or higher or STEP7 V5.2 + SP1 or higher with HSP 218 |
|---------------------|------------------------------------------------------------------------|

### Supply voltage

|                                                        |          |
|--------------------------------------------------------|----------|
| 24 V DC                                                | Yes      |
| permissible range, lower limit (DC)                    | 19.2 V   |
| permissible range, upper limit (DC)                    | 28.8 V   |
| External protection for supply cables (recommendation) | 2 A min. |

### Mains buffering

|                                          |      |
|------------------------------------------|------|
| Mains/voltage failure stored energy time | 5 ms |
| Repeat rate, min.                        | 1 s  |

### Input current

|                                                       |                                                                                               |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Current consumption (rated value)                     | 650 mA                                                                                        |
| Current consumption (in no-load operation), typ.      | 140 mA                                                                                        |
| Inrush current, typ.                                  | 3.5 A                                                                                         |
| $I^2t$                                                | 1 A <sup>2</sup> ·s                                                                           |
| <b>Power losses</b>                                   |                                                                                               |
| Power loss, typ.                                      | 4 W                                                                                           |
| <b>Memory</b>                                         |                                                                                               |
| <b>Work memory</b>                                    |                                                                                               |
| integrated                                            | 128 kbyte                                                                                     |
| expandable                                            | No                                                                                            |
| Size of retentive memory for retentive data blocks    | 64 kbyte                                                                                      |
| <b>Load memory</b>                                    |                                                                                               |
| pluggable (MMC)                                       | Yes                                                                                           |
| pluggable (MMC), max.                                 | 8 Mbyte                                                                                       |
| Data management on MMC (after last programming), min. | 10 a                                                                                          |
| <b>Backup</b>                                         |                                                                                               |
| present                                               | Yes ; Guaranteed by MMC (maintenance-free)                                                    |
| without battery                                       | Yes ; Program and data                                                                        |
| <b>CPU processing times</b>                           |                                                                                               |
| for bit operations, min.                              | 0.06 µs                                                                                       |
| for word operations, min.                             | 0.12 µs                                                                                       |
| for fixed point arithmetic, min.                      | 0.16 µs                                                                                       |
| for floating point arithmetic, min.                   | 0.59 µs                                                                                       |
| <b>CPU-blocks</b>                                     |                                                                                               |
| Number of blocks (total)                              | 1024 ; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used. |
| <b>DB</b>                                             |                                                                                               |
| Number, max.                                          | 1024 ; Number range: 1 to 16000                                                               |
| Size, max.                                            | 64 kbyte                                                                                      |
| <b>FB</b>                                             |                                                                                               |
| Number, max.                                          | 1024 ; Number range: 0 to 7999                                                                |
| Size, max.                                            | 64 kbyte                                                                                      |
| <b>FC</b>                                             |                                                                                               |

|                                               |                                          |
|-----------------------------------------------|------------------------------------------|
| Number, max.                                  | 1024 ; Number range: 0 to 7999           |
| Size, max.                                    | 64 kbyte                                 |
| <b>OB</b>                                     |                                          |
| Description                                   | see instruction list                     |
| 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 time interrupt OBs                  | 4 ; OB 32, 33, 34, 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, 87                    |
| Number of synchronous error OBs               | 2 ; OB 121, 122                          |
| <b>Nesting depth</b>                          |                                          |
| per priority class                            | 16                                       |
| additional within an error OB                 | 4                                        |
| <b>Counters, timers and their retentivity</b> |                                          |
| <b>S7 counter</b>                             |                                          |
| Number                                        | 256                                      |
| <b>Retentivity</b>                            |                                          |
| adjustable                                    | Yes                                      |
| lower limit                                   | 0                                        |
| upper limit                                   | 255                                      |
| preset                                        | Z 0 to Z 7                               |
| <b>Counting range</b>                         |                                          |
| lower limit                                   | 0                                        |
| upper limit                                   | 999                                      |
| <b>IEC counter</b>                            |                                          |
| present                                       | Yes                                      |
| Type                                          | SFB                                      |
| Number                                        | Unlimited (limited only by RAM capacity) |
| <b>S7 times</b>                               |                                          |
| Number                                        | 256                                      |

|                                  |                                          |
|----------------------------------|------------------------------------------|
| Retentivity                      |                                          |
| adjustable                       | Yes                                      |
| lower limit                      | 0                                        |
| upper limit                      | 255                                      |
| preset                           | No retentivity                           |
| Time range                       |                                          |
| lower limit                      | 10 ms                                    |
| upper limit                      | 9990 s                                   |
| IEC timer                        |                                          |
| present                          | Yes                                      |
| Type                             | SFB                                      |
| Number                           | Unlimited (limited only by RAM capacity) |
| Data areas and their retentivity |                                          |
| retentive data area, total       | All, max. 64 KB                          |
| Flag                             |                                          |
| Number, 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                      |                                          |
| Number, max.                     | 1024 ; Number range: 1 to 16000          |
| Size, max.                       | 64 kbyte                                 |
| Retentivity adjustable           | Yes ; via non-retain property on DB      |
| Retentivity preset               | Yes                                      |
| Local data                       |                                          |
| per priority class, max.         | 32 kbyte ; Max. 2 KB per block           |
| Address area                     |                                          |
| I/O address area                 |                                          |
| Inputs                           | 1024 byte                                |
| Outputs                          | 1024 byte                                |
| Process image                    |                                          |
| Inputs                           | 1024 byte                                |
| Outputs                          | 1024 byte                                |

|                                                                                    |                                                                          |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Inputs, adjustable                                                                 | 1024 byte                                                                |
| Outputs, adjustable                                                                | 1024 byte                                                                |
| Inputs, default                                                                    | 128 byte                                                                 |
| Outputs, default                                                                   | 128 byte                                                                 |
| <b>Digital channels</b>                                                            |                                                                          |
| Inputs                                                                             | 1024                                                                     |
| Outputs                                                                            | 1024                                                                     |
| Inputs, of which central                                                           | 1024                                                                     |
| Outputs, of which central                                                          | 1024                                                                     |
| <b>Analog channels</b>                                                             |                                                                          |
| Inputs                                                                             | 256                                                                      |
| Outputs                                                                            | 256                                                                      |
| Inputs, of which central                                                           | 256                                                                      |
| Outputs, of which central                                                          | 256                                                                      |
| <b>Hardware configuration</b>                                                      |                                                                          |
| Racks, max.                                                                        | 4                                                                        |
| Modules per rack, max.                                                             | 8                                                                        |
| Expansion devices, max.                                                            | 3                                                                        |
| <b>Number of DP masters</b>                                                        |                                                                          |
| integrated                                                                         | 0                                                                        |
| via CP                                                                             | 4                                                                        |
| <b>Configuration / Number of FMs and CPs that can be operated (recommendation)</b> |                                                                          |
| FM                                                                                 | 8                                                                        |
| CP, point-to-point                                                                 | 8                                                                        |
| CP, LAN                                                                            | 10                                                                       |
| <b>Time of day</b>                                                                 |                                                                          |
| <b>Clock</b>                                                                       |                                                                          |
| Hardware clock (real-time clock)                                                   | Yes                                                                      |
| battery-backed and synchronizable                                                  | Yes                                                                      |
| Deviation per day, max.                                                            | 10 s ; Typ.: 2 s                                                         |
| Backup time                                                                        | 6 wk ; At 40 °C ambient temperature                                      |
| Behavior of the clock following POWER-ON                                           | Clock continues running after POWER OFF                                  |
| Behavior of the clock following expiry of backup period                            | Clock continues to run with the time at which the power failure occurred |

|                                                 |                                                 |
|-------------------------------------------------|-------------------------------------------------|
| Operating hours counter                         |                                                 |
| Number                                          | 1                                               |
| Number/Number range                             | 0                                               |
| Range of values                                 | 0 to 2 <sup>31</sup> hours (when using SFC 101) |
| Granularity                                     | 1 hour                                          |
| retentive                                       | Yes ; Must be restarted at each restart         |
| Clock synchronization                           |                                                 |
| supported                                       | Yes                                             |
| to MPI, master                                  | Yes                                             |
| to MPI, slave                                   | Yes                                             |
| in AS, master                                   | Yes                                             |
| in AS, slave                                    | No                                              |
| Interfaces                                      |                                                 |
| Number of USB interfaces                        | 0                                               |
| Number of parallel interfaces                   | 0                                               |
| Number of 20 mA interfaces (TTY)                | 0                                               |
| Number of RS 232 interfaces                     | 0                                               |
| Number of RS 422 interfaces                     | 0                                               |
| Number of other interfaces                      | 0                                               |
| 1st interface                                   |                                                 |
| Type of interface                               | Integrated RS 485 interface                     |
| Physics                                         | RS 485                                          |
| Isolated                                        | No                                              |
| Power supply to interface (15 to 30 V DC), max. | 200 mA                                          |
| Functionality                                   |                                                 |
| MPI                                             | Yes                                             |
| DP master                                       | No                                              |
| DP slave                                        | No                                              |
| Point-to-point connection                       | No                                              |
| MPI                                             |                                                 |
| Services                                        |                                                 |
| PG/OP communication                             | Yes                                             |
| Routing                                         | No                                              |

|                                               |                                                                                     |
|-----------------------------------------------|-------------------------------------------------------------------------------------|
| Global data communication                     | Yes                                                                                 |
| S7 basic communication                        | Yes                                                                                 |
| S7 communication                              | Yes ; Only server, configured on one side                                           |
| S7 communication, as client                   | No                                                                                  |
| S7 communication, as server                   | Yes                                                                                 |
| Transmission rate, max.                       | 187.5 kbit/s                                                                        |
| <b>Communication functions</b>                |                                                                                     |
| PG/OP communication                           | Yes                                                                                 |
| Data record routing                           | No                                                                                  |
| <b>Global data communication</b>              |                                                                                     |
| 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                                                                             |
| <b>S7 basic communication</b>                 |                                                                                     |
| 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) |
| <b>S7 communication</b>                       |                                                                                     |
| supported                                     | Yes                                                                                 |
| as server                                     | Yes                                                                                 |
| as client                                     | Yes ; Via CP and loadable FB                                                        |
| User data per job, max.                       | 180 byte ; With PUT/GET                                                             |
| User data per job (of which consistent), max. | 240 byte ; as server                                                                |
| <b>S5-compatible communication</b>            |                                                                                     |
| supported                                     | Yes ; via CP and loadable FC                                                        |
| <b>Number of connections</b>                  |                                                                                     |
| overall                                       | 12                                                                                  |
| usable for PG communication                   | 11                                                                                  |
| reserved for PG communication                 | 1                                                                                   |

|                                                      |                                                                                   |
|------------------------------------------------------|-----------------------------------------------------------------------------------|
| Adjustable for PG communication, min.                | 1                                                                                 |
| Adjustable for PG communication, max.                | 11                                                                                |
| usable for OP communication                          | 11                                                                                |
| reserved for OP communication                        | 1                                                                                 |
| adjustable for OP communication, min.                | 1                                                                                 |
| adjustable for OP communication, max.                | 11                                                                                |
| usable for S7 basic communication                    | 8                                                                                 |
| Reserved for S7 basic communication                  | 0                                                                                 |
| adjustable for S7 basic communication, min.          | 0                                                                                 |
| adjustable for S7 basic communication, max.          | 8                                                                                 |
| <b>S7 message functions</b>                          |                                                                                   |
| Number of login stations for message functions, max. | 12 ; Depending on the configured connections for PG/OP and S7 basic communication |
| Process diagnostic messages                          | Yes                                                                               |
| simultaneously active Alarm-S blocks, max.           | 300                                                                               |
| <b>Test commissioning functions</b>                  |                                                                                   |
| <b>Status/control</b>                                |                                                                                   |
| 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                                                                                |
| <b>Forcing</b>                                       |                                                                                   |
| Forcing                                              | Yes                                                                               |
| Force, variables                                     | Inputs, outputs                                                                   |
| Number of variables, max.                            | 10                                                                                |
| Status block                                         | Yes ; Up to 2 simultaneously                                                      |
| Single step                                          | Yes                                                                               |
| Number of breakpoints                                | 4                                                                                 |
| <b>Diagnostic buffer</b>                             |                                                                                   |
| present                                              | Yes                                                                               |
| Number of entries, max.                              | 500                                                                               |
| adjustable                                           | No                                                                                |
| Of which powerfail-proof                             | 100 ; Only the last 100 entries are retained                                      |

|                                             |                                         |
|---------------------------------------------|-----------------------------------------|
| Number of entries readable in RUN, max.     | 499                                     |
| adjustable                                  | Yes ; From 10 to 499                    |
| preset                                      | 10                                      |
| <b>Service data</b>                         |                                         |
| Can be read out                             | Yes                                     |
| <b>Ambient conditions</b>                   |                                         |
| <b>Operating temperature</b>                |                                         |
| Min.                                        | 0 °C                                    |
| max.                                        | 60 °C                                   |
| <b>Configuration</b>                        |                                         |
| <b>Configuration software</b>               |                                         |
| STEP 7                                      | Yes ; V5.2 SP1 or higher with HW update |
| <b>programming</b>                          |                                         |
| <b>Programming language</b>                 |                                         |
| LAD                                         | Yes                                     |
| FBD                                         | Yes                                     |
| STL                                         | Yes                                     |
| SCL                                         | Yes                                     |
| CFC                                         | Yes                                     |
| GRAPH                                       | Yes                                     |
| HiGraph®                                    | Yes                                     |
| Command set                                 | see instruction list                    |
| Nesting levels                              | 8                                       |
| <b>Software libraries</b>                   |                                         |
| System functions (SFC)                      | see instruction list                    |
| System function blocks (SFB)                | see instruction list                    |
| <b>Know-how protection</b>                  |                                         |
| User program protection/password protection | Yes                                     |
| Block encryption                            | Yes ; With S7 block Privacy             |
| <b>Dimensions</b>                           |                                         |
| Width                                       | 40 mm                                   |
| Height                                      | 125 mm                                  |
| Depth                                       | 130 mm                                  |

| Weight          |              |
|-----------------|--------------|
| Weight, approx. | 280 g        |
| Status          | Jul 13, 2012 |