

SIMATIC S7-400H, CPU 417H CENTRAL UNIT FOR S7-400H 4  
INTERFACES: 1 MPI/DP, 1 DP A. 2 FOR SYNC MODULES 4MB  
MEMORY (2MB CODE/2MB DATA)

### Supply voltage

Rated value (DC)

- 24 V DC

Yes

### Input current

from backplane bus 5 V DC, typ.

1.8 A

from backplane bus 5 V DC, max.

2 A

from backplane bus 24 V DC, max.

300 mA; Total current consumption of the components connected to the MPI/DP interfaces, but no more than 150 mA per interface

### Power loss

Power loss, typ.

10 W

### Memory

Work memory

- integrated
- integrated (for program)
- integrated (for data)
- expandable
- expandable, max.

4 Mbyte

2 Mbyte

2 Mbyte

Yes

20 Mbyte; up to 10 MB for program, up to 10 MB for data

Load memory

- expandable FEPRM
- expandable FEPRM, max.
- integrated RAM, max.
- expandable RAM
- expandable RAM, max.

Yes; with Memory Card (FEPRM)

64 Mbyte

256 kbyte

Yes; with Memory Card (RAM)

64 Mbyte

Backup

- present
- with battery
- without battery

Yes

Yes; all data

No

### Battery

Backup battery

- Backup current, typ.
- Backup current, max.
- Feeding of external backup voltage to CPU

75  $\mu$ A

860  $\mu$ A

5 V DC to 15 V DC

### CPU processing times

|                                     |        |
|-------------------------------------|--------|
| for bit operations, typ.            | 0.1 µs |
| for word operations, typ.           | 0.1 µs |
| for fixed point arithmetic, typ.    | 0.1 µs |
| for floating point arithmetic, typ. | 0.6 µs |

## CPU-blocks

|                |                      |
|----------------|----------------------|
| DB             |                      |
| • Number, max. | 8 192; DB 0 reserved |
| • Size, max.   | 64 kbyte             |
| FB             |                      |
| • Number, max. | 6 144                |
| • Size, max.   | 64 kbyte             |
| FC             |                      |
| • Number, max. | 6 144                |
| • Size, max.   | 64 kbyte             |
| OB             |                      |
| • Number, max. | see instruction list |
| • Size, max.   | 64 kbyte             |

## Counters, timers and their retentivity

|                |            |
|----------------|------------|
| S7 counter     |            |
| • Number       | 512        |
| Retentivity    |            |
| — adjustable   | Yes        |
| — lower limit  | 0          |
| — upper limit  | 2 047      |
| — preset       | Z 0 to Z 7 |
| Counting range |            |
| — lower limit  | 1          |
| — upper limit  | 999        |
| IEC counter    |            |
| • present      | Yes        |
| • Type         | SFB        |
| S7 times       |            |
| • Number       | 512        |
| Time range     |            |
| — lower limit  | 10 ms      |
| — upper limit  | 9 990 s    |
| IEC timer      |            |
| • present      | Yes        |
| • Type         | SFB        |

## Data areas and their retentivity

|      |  |
|------|--|
| Flag |  |
|------|--|

|                         |                       |
|-------------------------|-----------------------|
| • Number, max.          | 16 kbyte              |
| • Retentivity available | Yes; MB 0 to MB 16383 |
| • Retentivity preset    | MB 0 to MB 15         |

## Address area

|                                     |                                                                 |
|-------------------------------------|-----------------------------------------------------------------|
| I/O address area                    |                                                                 |
| • Inputs                            | 16 kbyte                                                        |
| • Outputs                           | 16 kbyte                                                        |
| Process image                       |                                                                 |
| • Inputs, adjustable                | 16 kbyte; adjustable at the expense of the code area of the RAM |
| • Outputs, adjustable               | 16 kbyte; adjustable at the expense of the code area of the RAM |
| • Inputs, default                   | 1 024 byte                                                      |
| • Outputs, default                  | 1 024 byte                                                      |
| Subprocess images                   |                                                                 |
| • Number of subprocess images, max. | 8                                                               |
| Digital channels                    |                                                                 |
| • Inputs                            | 131 072                                                         |
| — of which central                  | 131 072                                                         |
| • Outputs                           | 131 072                                                         |
| — of which central                  | 131 072                                                         |
| Analog channels                     |                                                                 |
| • Inputs                            | 8 192                                                           |
| — of which central                  | 8 192                                                           |
| • Outputs                           | 8 192                                                           |
| — of which central                  | 8 192                                                           |

## Hardware configuration

|                                              |                                                          |
|----------------------------------------------|----------------------------------------------------------|
| Number of expansion units, max.              | 21                                                       |
| Multicomputing                               | No                                                       |
| Interface modules                            |                                                          |
| • Number of connectable IMs (total), max.    | 6                                                        |
| • Number of connectable IM 460s, max.        | 6                                                        |
| • Number of connectable IM 463s, max.        | 6                                                        |
| Number of DP masters                         |                                                          |
| • integrated                                 | 2                                                        |
| • via CP                                     | 10                                                       |
| • via IM 467                                 | 0                                                        |
| • Mixed mode IM + CP permitted               | No; IM 467 cannot be used jointly with CP 443-5 Ext.     |
| • via interface module                       | 0                                                        |
| Number of operable FMs and CPs (recommended) |                                                          |
| • FM                                         | 64; Limited by number of slots and number of connections |
| • CP, PtP                                    | 64; Limited by number of slots and number of connections |
| • CP, LAN                                    | 64; Limited by number of slots and number of connections |

|                                        |                                          |
|----------------------------------------|------------------------------------------|
| Slots                                  |                                          |
| • required slots                       | 2                                        |
| Time of day                            |                                          |
| Clock                                  |                                          |
| • Hardware clock (real-time)           | Yes                                      |
| • retentive and synchronizable         | Yes                                      |
| Operating hours counter                |                                          |
| • Number                               | 8                                        |
| Clock synchronization                  |                                          |
| • supported                            | Yes                                      |
| 1. Interface                           |                                          |
| Physics                                | RS 485 / PROFIBUS                        |
| Isolated                               | Yes                                      |
| Protocols                              |                                          |
| • MPI                                  | Yes; Default setting                     |
| • PROFIBUS DP master                   | Yes                                      |
| • PROFIBUS DP slave                    | No                                       |
| MPI                                    |                                          |
| • Number of connections                | 44                                       |
| • Transmission rate, max.              | 12 Mbit/s                                |
| Services                               |                                          |
| — PG/OP communication                  | Yes                                      |
| — Global data communication            | No                                       |
| — S7 basic communication               | No                                       |
| — S7 communication                     | Yes                                      |
| — S7 communication, as client          | Yes                                      |
| — S7 communication, as server          | Yes                                      |
| PROFIBUS DP master                     |                                          |
| • Number of connections, max.          | 32; of which 1 reserved for PG, 1 for OP |
| • Transmission rate, max.              | 12 Mbit/s                                |
| • Number of DP slaves, max.            | 32; Number of slots, max. 512            |
| Services                               |                                          |
| — PG/OP communication                  | Yes                                      |
| — Global data communication            | No                                       |
| — S7 basic communication               | No                                       |
| — S7 communication                     | No                                       |
| — S7 communication, as client          | No                                       |
| — S7 communication, as server          | No                                       |
| — Equidistance                         | No                                       |
| — SYNC/FREEZE                          | No                                       |
| — Activation/deactivation of DP slaves | No                                       |

|                                                       |          |
|-------------------------------------------------------|----------|
| — Direct data exchange (slave-to-slave communication) | No       |
| <b>Address area</b>                                   |          |
| — Inputs, max.                                        | 2 kbyte  |
| — Outputs, max.                                       | 2 kbyte  |
| <b>User data per DP slave</b>                         |          |
| — Inputs, max.                                        | 244 byte |
| — Outputs, max.                                       | 244 byte |
| — per slot, max.                                      | 244 byte |

## 2. Interface

|                                                       |                                 |
|-------------------------------------------------------|---------------------------------|
| Physics                                               | RS 485 / PROFIBUS               |
| Isolated                                              | Yes                             |
| <b>Protocols</b>                                      |                                 |
| • PROFIBUS DP master                                  | Yes                             |
| • PROFIBUS DP slave                                   | No                              |
| • Point-to-point connection                           | No                              |
| <b>PROFIBUS DP master</b>                             |                                 |
| • Number of connections, max.                         | 16; For PG/OP communication     |
| • Transmission rate, max.                             | 12 Mbit/s                       |
| • Number of DP slaves, max.                           | 125; Number of slots, max. 2048 |
| <b>Services</b>                                       |                                 |
| — PG/OP communication                                 | Yes                             |
| — Global data communication                           | No                              |
| — S7 basic communication                              | No                              |
| — S7 communication                                    | No                              |
| — S7 communication, as client                         | No                              |
| — S7 communication, as server                         | No                              |
| — Equidistance                                        | No                              |
| — SYNC/FREEZE                                         | No                              |
| — Activation/deactivation of DP slaves                | No                              |
| — Direct data exchange (slave-to-slave communication) | No                              |
| <b>Address area</b>                                   |                                 |
| — Inputs, max.                                        | 8 kbyte                         |
| — Outputs, max.                                       | 8 kbyte                         |
| <b>User data per DP slave</b>                         |                                 |
| — Inputs, max.                                        | 244 byte                        |
| — Outputs, max.                                       | 244 byte                        |
| <b>Communication functions</b>                        |                                 |
| PG/OP communication                                   | Yes                             |
| <b>Global data communication</b>                      |                                 |

|                                                      |                             |
|------------------------------------------------------|-----------------------------|
| • supported                                          | No                          |
| S7 basic communication                               |                             |
| • supported                                          | No                          |
| S7 communication                                     |                             |
| • supported                                          | Yes                         |
| • as server                                          | Yes                         |
| • as client                                          | Yes                         |
| • User data per job, max.                            | 64 kbyte                    |
| S5 compatible communication                          |                             |
| • supported                                          | Yes; via CP and loadable FC |
| • User data per job, max.                            | 8 kbyte                     |
| Standard communication (FMS)                         |                             |
| • supported                                          | Yes; Via CP and loadable FB |
| • User data per job, max.                            | Dependent on CP             |
| Number of connections                                |                             |
| • overall                                            | 64                          |
| • usable for PG communication                        |                             |
| — reserved for PG communication                      | 1                           |
| — adjustable for PG communication, max.              | 0                           |
| • usable for OP communication                        |                             |
| — reserved for OP communication                      | 1                           |
| — adjustable for OP communication, max.              | 0                           |
| • usable for S7 basic communication                  |                             |
| — reserved for S7 basic communication                | 0                           |
| — adjustable for S7 basic communication, max.        | 0                           |
| • usable for routing                                 |                             |
| — reserved for routing                               | 0                           |
| — adjustable for routing, max.                       | 0                           |
| S7 message functions                                 |                             |
| Number of login stations for message functions, max. | 16                          |
| Configuration                                        |                             |
| Configuration software                               |                             |
| • STEP 7                                             | Yes; V5.0 SP2               |
| Programming                                          |                             |
| Programming language                                 |                             |
| — LAD                                                | Yes                         |
| — FBD                                                | Yes                         |
| — STL                                                | Yes                         |
| — SCL                                                | Yes                         |
| — CFC                                                | Yes                         |

- GRAPH
- HiGraph®

Yes  
Yes

#### Know-how protection

- User program protection/password protection

Yes

#### Dimensions

|        |        |
|--------|--------|
| Width  | 50 mm  |
| Height | 290 mm |
| Depth  | 219 mm |

#### Weights

|                 |         |
|-----------------|---------|
| Weight, approx. | 1 070 g |
|-----------------|---------|

**last modified:** 08/15/2019