

SIMATIC S7-400H, CPU 417H Central processing unit for S7-400H 4 interfaces: 1 MPI/DP, 1 DP and 2 for sync modules 20 MB memory (10 MB data/10 MB program)



General information	
Product type designation	CPU 417H
Supply voltage	
Rated value (DC)	Yes
<ul style="list-style-type: none"> <li>• 24 V DC</li> </ul>	
Input current	
from backplane bus 5 V DC, max.	1.7 A
Power loss	
Power loss, typ.	6 W
Memory	
Work memory	
<ul style="list-style-type: none"> <li>• integrated</li> </ul>	20 Mbyte
<ul style="list-style-type: none"> <li>• expandable</li> </ul>	No
Load memory	
<ul style="list-style-type: none"> <li>• expandable FEPRM</li> </ul>	Yes; with Memory Card (FLASH)
<ul style="list-style-type: none"> <li>• expandable FEPRM, max.</li> </ul>	64 Mbyte
<ul style="list-style-type: none"> <li>• integrated RAM, max.</li> </ul>	256 kbyte

• expandable RAM	Yes; with Memory Card (RAM)
• expandable RAM, max.	64 Mbyte
<b>Backup</b>	
• present	Yes
• with battery	Yes; all data
• without battery	No
<b>Battery</b>	
<b>Backup battery</b>	
• Backup current, typ.	600 $\mu$ A
• Backup current, max.	1 810 $\mu$ A
• Feeding of external backup voltage to CPU	5 V DC to 15 V DC
<b>CPU processing times</b>	
for bit operations, typ.	0.03 $\mu$ s
for word operations, typ.	0.03 $\mu$ s
for fixed point arithmetic, typ.	0.03 $\mu$ s
for floating point arithmetic, typ.	0.09 $\mu$ s
<b>CPU-blocks</b>	
<b>DB</b>	
• Number, max.	8 192; DB 0 reserved
• Size, max.	64 kbyte
<b>FB</b>	
• Number, max.	6 144
• Size, max.	64 kbyte
<b>FC</b>	
• Number, max.	6 144
• Size, max.	64 kbyte
<b>OB</b>	
• Number, max.	see instruction list
• Size, max.	64 kbyte
<b>Nesting depth</b>	
• per priority class	24
• additional within an error OB	2
<b>Counters, timers and their retentivity</b>	
<b>S7 counter</b>	
• Number	2 048
<b>Retentivity</b>	
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	Z 0 to Z 7

<b>Counting range</b>	
— lower limit	1
— upper limit	999
<b>IEC counter</b>	
• present	Yes
• Type	SFB
<b>S7 times</b>	
• Number	2 048
<b>Time range</b>	
— lower limit	10 ms
— upper limit	9 990 s
<b>IEC timer</b>	
• present	Yes
• Type	SFB
<b>Data areas and their retentivity</b>	
<b>Flag</b>	
• Number, max.	16 kbyte
• Retentivity available	Yes; MB 0 to MB 16383
• Retentivity preset	MB 0 to MB 15
<b>Address area</b>	
<b>I/O address area</b>	
• Inputs	16 kbyte
• Outputs	16 kbyte
of which distributed	
— MPI/DP interface, inputs	2 kbyte
— MPI/DP interface, outputs	2 kbyte
— DP interface, inputs	8 kbyte
— DP interface, outputs	8 kbyte
<b>Process image</b>	
• Inputs, adjustable	16 kbyte
• Outputs, adjustable	16 kbyte
• Inputs, default	1 024 byte
• Outputs, default	1 024 byte
<b>Subprocess images</b>	
• Number of subprocess images, max.	8
<b>Digital channels</b>	
• Inputs	131 072
— of which central	131 072
• Outputs	131 072
— of which central	131 072
<b>Analog channels</b>	

• 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
<b>Interface modules</b>	
• Number of connectable IMs (total), max.	6
• Number of connectable IM 460s, max.	6
• Number of connectable IM 463s, max.	6; IM 463-2
<b>Number of DP masters</b>	
• 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
<b>Number of operable FMs and CPs (recommended)</b>	
• 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
<b>Slots</b>	
• required slots	2

## Time of day

<b>Clock</b>	
• Hardware clock (real-time)	Yes
• retentive and synchronizable	Yes
<b>Operating hours counter</b>	
• Number	8
<b>Clock synchronization</b>	
• supported	Yes

## 1. Interface

Physics	RS 485 / PROFIBUS
Isolated	Yes
<b>Protocols</b>	
• MPI	Yes; Default setting
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	No
<b>MPI</b>	
• 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
• 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

Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte

User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte

## 2. Interface

Physics	RS 485 / PROFIBUS
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Isolated	Yes
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Protocols	
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	No
• Point-to-point connection	No

PROFIBUS DP master	
• Number of connections, max.	32
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	125; Number of slots, max. 2048

Services	
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— 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
<b>S7 basic communication</b>	
• supported	No
<b>S7 communication</b>	
• supported	Yes
• as server	Yes
• as client	Yes
• User data per job, max.	64 kbyte
<b>S5 compatible communication</b>	
• supported	Yes; via CP and loadable FC
• User data per job, max.	8 kbyte
<b>Standard communication (FMS)</b>	
• supported	Yes; Via CP and loadable FB
• User data per job, max.	Dependent on CP
<b>Number of connections</b>	
• 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 Yes
- HiGraph® 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:** 06/21/2018