

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 μ A

860 μ A

5 to 15 VDC

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
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
Data blocks	
• Number, max.	8 192; DB 0 reserved
• Size, max.	64 kbyte
Address area	
I/O address area	
• 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
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 IM 467	0

• via CP	10
• 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, point-to-point	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 clock)	Yes
• retentive and synchronizable	Yes
Operating hours counter	
• Number	8
Clock synchronization	
• supported	Yes
1. Interface	
Physics	RS 485 / PROFIBUS
Isolated	Yes
Functionality	
• MPI	Yes; Default setting
• DP master	Yes
• 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
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 mode support	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
— per slot, max.	244 byte
2. Interface	
Physics	RS 485 / PROFIBUS
Isolated	Yes
Functionality	
• DP master	Yes
• DP slave	No
• Point-to-point connection	No
DP master	
• 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
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 mode support	No
— SYNC/FREEZE	No
— Activation/deactivation of DP slaves	No
— Direct data exchange (slave-to-slave communication)	No
Address area	
— Address area, max.	8 kbyte

— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
Communication functions	
PG/OP communication	Yes
Global data communication	
• 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	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
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