

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 V DC to 15 V DC

CPU processing times

for bit operations, typ.	0.1 μ s
for word operations, typ.	0.1 μ s
for fixed point arithmetic, typ.	0.1 μ s
for floating point arithmetic, typ.	0.6 μ s

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 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
Functionality	
• 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
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
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	
• PROFIBUS DP master	Yes
• PROFIBUS 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	No
— SYNC/FREEZE	No
— Activation/deactivation of DP slaves	No
— Direct data exchange (slave-to-slave communication)	No
Address area	
— 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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