

SIMATIC S7-400H, CPU 414H CENTRAL UNIT FOR S7-400H AND S7-400F/FH, 4 INTERFACES: 1 MPI/DP, 1 DP AND 2 FOR SYNC MODULES, 1.4 MB MEMORY (700 KB DATA/700 KB CODE)



Product type designation	
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
Input current	
from backplane bus 5 V DC, typ.	1 800 A
from backplane bus 5 V DC, max.	2 A
Power loss	
Power loss, typ.	4.5 W
Memory	
Work memory	
• integrated (for program)	700 kbyte
• integrated (for data)	700 kbyte
• expandable	No
Load memory	
• expandable FEPROM	Yes; with Memory Card (FLASH)
• expandable FEPROM, max.	64 Mbyte

• integrated RAM, max.	256 kbyte
• expandable RAM	Yes; with Memory Card (RAM)
• expandable RAM, max.	16 Mbyte
Backup	
• present	Yes
• with battery	Yes; all data
• without battery	No
Battery	
Backup battery	
• Backup current, typ.	550 µA
• Backup current, max.	1 530 µA
• Feeding of external backup voltage to CPU	5 to 15 VDC
CPU processing times	
for bit operations, typ.	0.06 µs
for word operations, typ.	0.06 µs
for fixed point arithmetic, typ.	0.06 µs
for floating point arithmetic, typ.	0.18 µs
CPU-blocks	
DB	
• Number, max.	4 095; DB 0 reserved
• Size, max.	64 kbyte
FB	
• Number, max.	2 048
• Size, max.	64 kbyte
FC	
• Number, max.	2 048
• Size, max.	64 kbyte
OB	
• Number, max.	see instruction list
• Size, max.	64 kbyte
Nesting depth	
• per priority class	24
Counters, timers and their retentivity	
S7 counter	
• Number	2 048
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	2 047
— preset	Z 0 to Z 7

Counting range	
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Type	SFB
S7 times	
• Number	2 048
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.	8 kbyte
• Retentivity available	Yes; from MB 0 to MB 8191
• Retentivity preset	MB 0 to MB 15
Data blocks	
• Number, max.	4 096; DB 0 reserved
• Size, max.	64 kbyte
Address area	
I/O address area	
• Inputs	8 kbyte
• Outputs	8 kbyte
of which distributed	
— MPI/DP interface, inputs	2 kbyte
— MPI/DP interface, outputs	2 kbyte
— DP interface, inputs	6 kbyte
— DP interface, outputs	6 kbyte
Process image	
• Inputs, adjustable	8 kbyte
• Outputs, adjustable	8 kbyte
• Inputs, default	1 024 byte
• Outputs, default	1 024 byte
Subprocess images	
• Number of subprocess images, max.	8
Digital channels	
• Inputs	65 536
— of which central	65 536

• Outputs	65 536
— of which central	65 536
Analog channels	
• Inputs	4 096
— of which central	4 096
• Outputs	4 096
— of which central	4 096
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; IM 463-2
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	32; Limited by number of slots and number of connections
• CP, point-to-point	32; Limited by number of slots and number of connections
• CP, LAN	32; 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	32
• 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
• 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	Yes
— 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
— Slots, max.	244
— per slot, max.	128 byte
2. Interface	
Physics	RS 485 / PROFIBUS
Isolated	Yes
Functionality	
• DP master	Yes; Default setting
• DP slave	No
• Point-to-point connection	No

DP master	
• Number of connections, max.	16
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	96
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.	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	32

- usable for PG communication
 - reserved for PG communication
 - adjustable for PG communication, max.
- usable for OP communication
 - reserved for OP communication
 - adjustable for OP communication, max.
- usable for S7 basic communication
 - reserved for S7 basic communication
 - adjustable for S7 basic communication, max.
- usable for routing
 - reserved for routing
 - adjustable for routing, max.

1
0
1
0
0
0
0
0

S7 message functions

Number of login stations for message functions, max. 8

Diagnostic buffer

- present Yes
- Number of entries, max. 3 200
 - can be set Yes
 - preset 120

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:

04.08.2015