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Data sheet 6ES7417-4HL04-0AB0

********** Replacement part ********* 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)	
• 24 V DC	Yes
Input current	
from backplane bus 5 V DC, max.	1.7 A
Power loss	
Power loss, typ.	6 W
Memory	
Work memory	
• integrated	20 Mbyte
• expandable	No
Load memory	
• expandable FEPROM	Yes; with Memory Card (FLASH)
• expandable FEPROM, max.	64 Mbyte
• integrated RAM, max.	256 kbyte

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• expandable RAM	Yes; with Memory Card (RAM)
• expandable RAM, max.	64 Mbyte
Backup	
• present	Yes
• with battery	Yes; all data
• without battery	No

Battery	
Backup battery	
• Backup current, typ.	600 µA
• Backup current, max.	1 810 µA
• Feeding of external backup voltage to CPU	5 V DC to 15 V DC

CPU processing times	
for bit operations, typ.	0.03 µs
for word operations, typ.	0.03 µs
for fixed point arithmetic, typ.	0.03 µs
for floating point arithmetic, typ.	0.09 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
Nesting depth	
• per priority class	24
• additional within an error OB	2

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

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Counting range	
— lower limit	1
— 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.	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
• Outputs, adjustable	16 kbyte
• 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

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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 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

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— 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
Isolated	Yes
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. 2 048
Services	
— PG/OP communication	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication	No

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— 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

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— 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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