



\*\*\*\*\* repair part \*\*\*\*\* SIMATIC S7-400H, CPU 414H central processing 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 program)

General information	
Product type designation	CPU 414-4H
Supply voltage	
Rated value (DC)	Power supply via system power supply
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
Storage	
Type of memory	RAM
Work memory	
<ul style="list-style-type: none"> <li>integrated (for program)</li> </ul>	700 kbyte
<ul style="list-style-type: none"> <li>integrated (for data)</li> </ul>	700 kbyte
<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
<ul style="list-style-type: none"> <li>expandable RAM</li> </ul>	Yes; with Memory Card (RAM)
<ul style="list-style-type: none"> <li>expandable RAM, max.</li> </ul>	64 Mbyte
Backup	
<ul style="list-style-type: none"> <li>present</li> </ul>	Yes
<ul style="list-style-type: none"> <li>with battery</li> </ul>	Yes; all data
<ul style="list-style-type: none"> <li>without battery</li> </ul>	No
Battery	
Backup battery	
<ul style="list-style-type: none"> <li>Backup current, typ.</li> </ul>	550 $\mu$ A
<ul style="list-style-type: none"> <li>Backup current, max.</li> </ul>	1 530 $\mu$ A
<ul style="list-style-type: none"> <li>Feeding of external backup voltage to CPU</li> </ul>	5 V DC to 15 V DC
CPU processing times	
for bit operations, typ.	0.06 $\mu$ s
for word operations, typ.	0.06 $\mu$ s
for fixed point arithmetic, typ.	0.06 $\mu$ s
for floating point arithmetic, typ.	0.18 $\mu$ s
CPU-blocks	
DB	
<ul style="list-style-type: none"> <li>Number, max.</li> </ul>	4 095; DB 0 reserved
<ul style="list-style-type: none"> <li>Size, max.</li> </ul>	64 kbyte

<b>FB</b>	
• Number, max.	2 048
• Size, max.	64 kbyte
<b>FC</b>	
• Number, max.	2 048
• Size, max.	64 kbyte
<b>OB</b>	
• Number, max.	see instruction list
• Size, max.	64 kbyte
<b>Nesting depth</b>	
• per priority class	24
<b>Counters, timers and their retentivity</b>	
<b>S7 counter</b>	
• Number	2 048
<b>Retentivity</b>	
— can be set	Yes
— preset	Z 0 to Z 7
<b>Counting range</b>	
— lower limit	0
— upper limit	999
<b>IEC counter</b>	
• present	Yes
• Type	SFB
<b>S7 timer</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>	
• Size, max.	8 kbyte
• Retentivity available	Yes; From MB 0 to MB 8 191
• Retentivity preset	MB 0 to MB 15
<b>Address area</b>	
<b>I/O address area</b>	
• Inputs	8 kbyte
• Outputs	8 kbyte
<b>Process image</b>	
• Inputs, adjustable	8 kbyte
• Outputs, adjustable	8 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	65 536
— of which central	65 536
• Outputs	65 536
— of which central	65 536
<b>Analog channels</b>	
• Inputs	4 096
— of which central	4 096
• Outputs	4 096
— of which central	4 096
<b>Hardware configuration</b>	
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	32; Limited by number of slots and number of connections
• CP, PtP	32; Limited by number of slots and number of connections
• CP, LAN	32; Limited by number of slots and number of connections
<b>Slots</b>	
• required slots	2
<b>Time of day</b>	
<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
<b>1. Interface</b>	
Interface type	MPI/PROFIBUS DP
Isolated	Yes
<b>Interface types</b>	
• RS 485	Yes
<b>Protocols</b>	
• MPI	Yes; Default setting
• PROFIBUS DP master	Yes
• PROFIBUS DP device	No
<b>MPI</b>	
• Number of connections	32
• Transmission rate, max.	12 Mbit/s
<b>Services</b>	
— 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
<b>PROFIBUS DP master</b>	
• Number of connections, max.	32
• Transmission rate, max.	12 Mbit/s
• max. number of DP devices	32; Number of slots, max. 512
<b>Services</b>	
— 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 devices	Yes
— Direct data exchange (slave-to-slave)	No

communication)	
<b>Address area</b>	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
<b>User data per DP device</b>	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
<b>2. Interface</b>	
<b>Interface type</b>	PROFIBUS DP
<b>Isolated</b>	Yes
<b>Interface types</b>	
• RS 485	Yes
<b>Protocols</b>	
• PROFIBUS DP master	Yes; Default setting
• PROFIBUS DP device	No
• Point-to-point connection	No
<b>PROFIBUS DP master</b>	
• Number of connections, max.	16
• Transmission rate, max.	12 Mbit/s
• max. number of DP devices	96
<b>Services</b>	
— 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 devices	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 device</b>	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
<b>Protocols</b>	
<b>SIMATIC communication</b>	
• S7 routing	Yes
<b>Communication functions</b>	
<b>PG/OP communication</b>	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	32	
• 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	
<b>S7 message functions</b>		
Number of login stations for message functions, max.	8	
<b>Test commissioning functions</b>		
<b>Diagnostic buffer</b>		
• present	Yes	
• Number of entries, max.	3 200	
— can be set	Yes	
— preset	120	
<b>Configuration</b>		
<b>Configuration software</b>		
• STEP 7	Yes; V5.0 SP2	
<b>Programming</b>		
<b>Programming language</b>		
— LAD	Yes	
— FBD	Yes	
— STL	Yes	
— SCL	Yes	
— CFC	Yes	
— GRAPH	Yes	
— HiGraph®	Yes	
<b>Know-how protection</b>		
• User program protection/password protection	Yes	
<b>Dimensions</b>		
Width	50 mm	
Height	290 mm	
Depth	219 mm	
<b>Weights</b>		
Weight, approx.	1 070 g	
<b>Classifications</b>		
	<b>Version</b>	<b>Classification</b>
eClass	14	27-24-22-07
eClass	12	27-24-22-07
eClass	9.1	27-24-22-07
eClass	9	27-24-22-07
eClass	8	27-24-22-07
eClass	7.1	27-24-22-07
eClass	6	27-24-22-07
ETIM	10	EC000236
ETIM	9	EC000236
ETIM	8	EC000236
ETIM	7	EC000236

IDEA	4	3565
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval



[China RoHS](#)

EMV For use in hazardous locations



EM



For use in hazardous locations Functional Safety Maritime application

[Type Examination Certificate](#)



[Type Examination Certificate](#)



Maritime application



[CCS \(China Classification Society\)](#)

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