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6/2	SIMATIC S7-400

SIMATIC S7-400 Advanced Controllers
Overview

SIMATIC S7-400

■ **Overview**

SIMATIC S7-400:
The powerful controller for system solutions in the manufacturing and process industries

Within the controller family, the SIMATIC S7-400 is designed for system solutions in the manufacturing and process automation industry.

- The modularly designed S7-400H can be flexibly adapted to your requirements. The redundant configuration further increases system availability.

- An additional protective coating (conformal coating) on the circuit board optimally protects the modules against external influences and makes them durable.

- The S7-400H stands out thanks to its long-term availability.

- Safety engineering, SIMATIC F-systems and standard automation can be integrated into a single automation system.

- The configuration of the distributed I/O of the S7-400 can be modified during operation. In addition signal modules can be removed and inserted while live (hot swapping). This makes it very easy to expand the system or replace modules in the event of a fault.

- Storage of the entire project data, including symbols and comments, on the CPU simplifies service and maintenance calls.

SIMATIC S7-400, CPU	412-5H[4]	414-5H[4]	416-5H[4]	417-5H[4]
Work memory	1 MB	4 MB	16 MB	32 MB
Processing times (ns)				
Bit/word/ fixed point/floating point	31.25/31.25/ 31.25/62.5	18.75/18.75/ 18.75/37.5	12.5/12.5/ 12.5/25	7.5/7.5/ 7.5/15
Timers/counters	2048/2048	2048/2048	2048/2048	2048/2048
Address ranges				
Digital inputs/outputs	65536 each	65536 each	131072 each	131072 each
Analog inputs/outputs	4096 each	4096 each	8192 each	8192 each
DP interfaces				
Number of MPI/DP interfaces	1	1	1	1
Number of DP interfaces	1	1	1	1
Number of DP slaves per MPI/DP	32	32	32	32
Number of DP slaves per DP	64	96	125	125
Plug-in interface modules	—	—	—	—
Data set gateway	●	●	●	●
PN interfaces				
Number of PN interfaces	1 (2 ports)	1 (2 ports)	1 (2 ports)	1 (2 ports)
PROFINET IO	●	●	●	●
PROFINET with IRT	—	—	—	—
PROFINET CBA	—	—	—	—
TCP/IP	●	●	●	●
UDP	●	●	●	●
Web server	—	—	—	—
ISO-on-TCP (RFC 1006)	●	●	●	●
Mounting dimensions W x H x D (mm)	50 x 290 x 219	50 x 290 x 219	50 x 290 x 219	50 x 290 x 219

— = cannot be used/not available   [4] also as SIPLUS extreme component for corrosive atmosphere/condensation
● = can be used/available

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- The S7-400 is especially suitable for data-intensive tasks in the process industry. High processing speeds and deterministic response times guarantee short machine cycle times on high-speed machines in the manufacturing industry. The high-speed backplane bus of S7-400 ensures efficient linking of central I/O modules.
- The S7-400 is used preferably to coordinate complete plants and to control lower-level devices/stations; this is guaranteed by the high communication power and the integral interfaces.
- The performance is scalable thanks to a graded range of CPUs; Interfaces for the PROFIBUS/PROFINET connection ensure optimal connectivity.
- To further increase ruggedness and durability in the harsh everyday industrial environment, the S7-400 has a "G3" conformal coating.

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SIMATIC S7-400, CPU	412-1 / 412-2	412-2 PN[4]	414-2 / 414-3	414-3 PN/DP[4]	416-2 / 416-3[4]	416-3 PN/DP[4]	417-4[4]
Work memory	512KB/ 1[1] MB	1 MB	2/4[2] MB	4 MB	8/16[3] MB	16 MB	32 MB
Processing times (ns) Bit/word/ fixed point/floating point	31.25/31.25/ 31.25/62.5	31.25/31.25/ 31.25/62.5	18.75/18.75/ 18.75/37.5	18.75/18.75/ 18.75/37.5	12.5/12.5/ 12.5/25	12.5/12.5/ 12.5/25	7.5/7.5/ 7.5/15
Timers/counters	2048/2048	2048/2048	2048/2048	2048/2048	2048/2048	2048/2048	2048/2048
Address range Digital inputs/outputs Analog inputs/outputs	32768 each 2048 each	32768 each 2048 each	65536 each 4096 each	65536 each 4096 each	131072 each 8192 each	131072 each 8192 each	131072 each 8192 each
DP interfaces Number of MPI/DP interfaces Number of DP interfaces Number of DP slaves per MPI/DP Number of DP slaves per DP Plug-in interface modules Data set gateway	1 — / 1[1] 32 64 — ●	1 — 32 — — ●	1 1 32 96 each — / 1 x DP[2] ●	1 — 32 125 each 1 x DP ●	1 1 32 125 each — / 1 x DP[3] ●	1 1 32 125 each 1 x DP ●	1 1 32 125 each 2 x DP ●
PN interfaces Number of PN interfaces PROFINET IO PROFINET with IRT PROFINET CBA TCP/IP UDP Web server ISO-on-TCP (RFC 1006)	— — — — — — — —	1 (2 ports) ● ● ● ● ● ● ●	— — — — — — — —	1 (2 ports) ● ● ● ● ● ● ●	— — — — — — — —	1 (2 ports) ● ● ● ● ● ● ●	— — — — — — — —
Mounting dimensions W x H x D (mm)	25 x 290 x 219	25 x 290 x 219	25 x 290 x 219 50 x 290 x 219[2]	50 x 290 x 219	25 x 290 x 219 50 x 290 x 219[3]	50 x 290 x 219	50 x 290 x 219

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● = can be used/available

[1] CPU 412-2
[2] CPU 414-3
[3] CPU 416-3
[4] also as SIPLUS extreme component for corrosive atmosphere/condensation

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- Safety engineering and standard automation can be integrated into a single S7-400.
- For demanding, safety-oriented automation in mechanical engineering with S7 Distributed Safety.
- Many S7-400 components are also available in a SIPLUS extreme version for extreme environmental conditions, e.g. for use where there is a corrosive atmosphere/condensation. For more detailed information, visit www.siemens.com/siplus-extreme

For more information, refer to:

www.siemens.com/simatic-s7-400

Detailed information on SIMATIC S7-400, see *Catalog ST 400* in the Siemens Industry Online Support:

www.siemens.com/industry-catalogs

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SIMATIC S7-400, CPU	414F-3 PN/DP	416F-2	416F-3 PN/DP
Work memory	4 MB	8 MB	16 MB
Processing times (ns) Bit/word/ fixed point/floating point	18.75/18.75/ 18.75/37.5	12.5/12.5/ 12.5/25	12.5/12.5/ 12.5/25
Timers/counters	2048/2048	2048/2048	2048/2048
Address ranges Digital inputs/outputs Analog inputs/outputs	65536 each 4096 each	131072 each 8192 each	131072 each 8192 each
DP interfaces Number of MPI/DP interfaces Number of DP interfaces Number of DP slaves per MPI/DP Number of DP slaves per DP Plug-in interface modules Data set gateway	1 1 32 125 each 1 x DP ●	1 1 32 125 — ●	1 1 32 125 each 1 x DP ●
PN interfaces Number of PN interfaces PROFINET IO PROFINET with IRT PROFINET CBA TCP/IP UDP Web server ISO-on-TCP (RFC 1006)	1 (2 ports) ● ● ● ● ● ● ●	— — — — — — — —	1 (2 ports) ● ● ● ● ● ● ●
Mounting dimensions W x H x D (mm)	50 x 290 x 219	25 x 290 x 219	50 x 290 x 219

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