OFFICIAL MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

6ES7416-3FR05-0AB0

Siemens official documentation for the exact article number.

Source: 6ES7416-3FR05-0AB0.pdf

Selected official Siemens pages follow this cover.

- Docking station - changing IO devices during operation (tool change)
  as of STEP 7 V5.4 SP4
- Extension of the web server functionality:
  as of STEP 7 V5.4 SP4
  - Module state
  - Topology
  - Refresh display

Basic knowledge required

To understand this manual, you should have general experience in the field of automation engineering.

You should also have experience of working with computers or PC-type tools (for example programming devices) and the Windows 2000 or XP operating system. The S7-400 is configured with the STEP 7 basic software, so you should also have experience of working with the basic software. You can acquire this knowledge in the *Programming with STEP 7* manual.

In particular when using an S7-400 in areas subject to safety regulations, note the information relating to the safety of electronic controllers in the Appendix of the *S7-400 Programmable Controller; Hardware and Installation* manual.

Validity of the manual

The manual applies to the CPUs listed below:

- CPU 412-1, V5.2; 6ES7 412-1XJ05-0AB0
- CPU 412-2, V5.2; 6ES7-412-2XJ05-0AB0
- CPU 414-2, V5.2; 6ES7 414-2XK05-0AB0
- CPU 414-3, V5.2; 6ES7 414-3XM05-0AB0
- CPU 414-3 PN/DP, V5.2; 6ES7 414-3EM05-0AB0
- CPU 416-2, V5.2; 6ES7 416-2XN05-0AB0
- CPU 416F-2, V5.2; 6ES7 416-2FN05-0AB0
- CPU 416-3, V5.2; 6ES7 416-3XR05-0AB0
- CPU 416-3 PN/DP, V5.2; 6ES7 416-3ER05-0AB0
- CPU 416F-3 PN/DP, V5.2; 6ES7 416-3FR05-0AB0
- CPU 417-4, V5.2; 6ES7 417-4XT05-0AB0

General technical specifications

Information about approvals and standards can be found in the *S7-400 Programmable Controller; Module Specifications* manual.

10.8 Specifications of the CPU 416-3 PN/DP (6ES7416-3ER05-0AB0), CPU 416F-3 PN/DP (6ES7416-3FR05-0AB0)

Data

CPU and firmware version	
MLFB	6ES7416-3ER05-0AB0 6ES7416-3FR05-0AB0
• Firmware version	V 5.2
Associated programming package	as of STEP 7 V 5.4 SP4 see also Introduction (Page 11)
Memory	
Working memory	
• Integrated	5.6 MB for code 5.6 MB for data
Load memory	
• Integrated	1024 KB RAM
• Expandable FEPROM	With memory card (FLASH) up to 64 MB
• Expandable RAM	With memory card (RAM) up to 64 MB
Backup with battery	Yes, all data
Typical processing times	
Processing times of	
• Bit operations	30 ns
• Word operations	30 ns
• Fixed-point arithmetic	30 ns
• Floating-point arithmetic	90 ns
Timers/counters and their retentivity	
S7 counters	2048
• Retentivity programmable	From Z 0 to Z 2047
• Preset	From Z 0 to Z 7
• Counting range	0 to 999
IEC counters	Yes
• Type	SFB
S7 timers	2048
• Retentivity programmable	From T 0 to T 2047
• Preset	No retentive timers
• Time range	10 ms to 9990 s
IEC timers	Yes
• Type	SFB

Data areas and their retentivity	
Total retentive data area (including memory markers, timers, counters)	Total work and load memory (with backup battery)
Bit memory	16 KB
• Retentivity programmable	From MB 0 to MB 16383
• Preset retentive address areas	From MB 0 to MB 15
Clock flag bits	8 (1 flag byte)
Data blocks	Maximum 10000 (DB 0 reserved) Band of numbers 1 to 16 000
• Size	Maximum 64 KB
Local data (programmable)	Maximum 32 KB
• Preset	16 KB
Blocks	
OBs	See *Instruction List*
• Size	Maximum 64 KB
Nesting depth	
• Per priority class	24
• Additionally within an error OB	2
FBs	Maximum 5000 Band of numbers 0 - 7999
• Size	Maximum 64 KB
FCs	Maximum 5000 Band of numbers 0 - 7999
• Size	Maximum 64 KB
SDBs	Maximum 2048
Address areas (I/O)	
Total I/O address area	16 KB / 16 KB including diagnostics addresses, addresses for I/O interface modules, etc
Distributed of this	
• MPI/DP interface	2 KB / 2 KB
• DP interface	8 KB / 8 KB
• PN interface	8 KB / 8 KB
Process image	16 KB / 16 KB (programmable)
• Preset	512 bytes / 512 bytes
• Number of process image partitions	Maximum 15
• Consistent data	Maximum 244 bytes
Digital channels	Maximum 131072 / maximum 131072
• Central of this	Maximum 131072 / maximum 131072
Analog channels	Maximum 8192 / maximum 8192
• Central of this	Maximum 8192 / maximum 8192