SIEMENS

Data sheet

6ES7410-5FM08-0AB0



SIMATIC S7, CPU 410SIS Safety Controller Central processing unit for S7-400F and S7-400FH, 5 interfaces: 2x PN, 1x DP, 2x for sync modules for using as spare part, without System Expansion Card

Figure similar

General information	
Product type designation	CPU 410SIS
HW functional status	1
Firmware version	V8.2
Design of PLC basic unit	With Conformal Coating (ISA-S71.04 severity level G1; G2; G3) and operating temperature to 70 °C
Product function	
• SysLog	Yes; via TCP; up to 4 receivers can be parameterized; buffer capacity max. 3 200 entries
Field interface security	Yes
Engineering with	
 Programming package 	SIMATIC SIS COMPACT V9.0 or higher
CiR - Configuration in RUN	
CiR synchronization time, basic load	60 ms
CiR synchronization time, time per I/O byte	0 μs
Input current	
from backplane bus 5 V DC, typ.	2 A
from backplane bus 5 V DC, max.	2.4 A
from backplane bus 24 V DC, max.	150 mA; DP interface
from interface 5 V DC, max.	90 mA; At the DP interface
Power loss	
Power loss, typ.	10 W
Processor	
CPU speed	450 MHz; Multi-processor system
Memory	
Work memory	
• integrated	4 Mbyte
integrated (for program)	2 Mbyte
integrated (for data)	2 Mbyte
expandable	No
Load memory	
integrated RAM, max.	48 Mbyte
expandable RAM	No
Backup	
with battery	Yes; all data
without battery	Yes; Program and data of the load memory

Battery	
Backup battery	
Backup current, typ.	370 μA; Valid up to 40°C
Backup current, max.	2.1 mA
Backup time, max.	Dealt with in the module data manual with the secondary conditions and the factors of influence
 Feeding of external backup voltage to CPU 	No
CPU processing times	
for bit operations, typ.	7.5 ns
for word operations, typ.	7.5 ns
for fixed point arithmetic, typ.	7.5 ns
for floating point arithmetic, typ.	15 ns
Process tasks, max.	9; Individually adjustable from 10 ms to 5 s
CPU-blocks	o, marviadany adjustasio from 10 mo to 0 0
DB	
Number, max.	16 000; Number range: 1 to 16 000 (= Instances)
• Size, max.	64 kbyte
FB	04 kbyte
Number, max.	8 000; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
Number, max.	8 000; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
Number, max.	see instruction list
• Size, max.	64 kbyte
Number of free cycle OBs	1; OB 1
Number of time alarm OBs	8; OB 10-17
Number of delay alarm OBs	4; OB 20-23
Number of cyclic interrupt OBs	9; OB 30-38 (= Process Tasks)
Number of process alarm OBs	8; OB 40-47
Number of DPV1 alarm OBs	3; OB 55-57
Number of startup OBs	2; OB 100, 102
Number of asynchronous error OBs	9; OB 80-88
Number of synchronous error OBs	2; OB 121, 122
Nesting depth	
per priority class	24
additional within an error OB	2
Counters, timers and their retentivity	
IEC counter	
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
IEC timer	Committee (minical conf.)
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	Total working and load memory (with backup battery)
Flag	
• Size, max.	16 384 byte
Retentivity available	Yes
Number of clock memories	8; in 1 memory byte
Local data	
adjustable, max.	64 kbyte
Address area	
I/O address area	
• Inputs	2 048 byte

- Outroute	0.040 h. da
• Outputs	2 048 byte
Process image	
• Inputs, default	2 048 byte; not changeable
 Outputs, default 	2 048 byte; not changeable
 consistent data, max. 	244 byte
Access to consistent data in process image	Yes
Subprocess images	
Number of subprocess images, max.	15
Hardware configuration	
Multicomputing	No
Number of DP masters	
integrated	1
• via CP	0
Number of IO Controllers	
integrated	0
• via CP	0
Slots	
required slots	2
Time of day	
Clock	
	Voc
Hardware clock (real-time)	Yes
retentive and synchronizable	Yes
• Resolution	1 ms
Deviation per day (buffered), max.	1.7 s; Power off
Deviation per day (unbuffered), max.	8.6 s; Power on
Operating hours counter	
Number	16
 Number/Number range 	0 to 15
 Range of values 	SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2^31 - 1 hours
 Granularity 	1 h
retentive	Yes
Clock synchronization	
supported	Yes
to DP, master	Yes
to DP, slave	Yes
• in AS, master	Yes
• in AS, slave	Yes
on Ethernet via NTP	Possible as client and master/slave via SIMATIC process
Interfaces	
Number of industrial Ethernet interfaces	2
Number of PROFINET interfaces	0
Number of RS 485 interfaces	1; PROFIBUS DP
Number of other interfaces	
	2; 2x synchronization
1. Interface	
Interface type	RS 485 / PROFIBUS
Isolated	Yes
Number of connection resources	16
Interface types	
Output current of the interface, max.	150 mA
Protocols	
 PROFIBUS DP master 	Yes
PROFIBUS DP slave	No
PROFIBUS DP master	
Number of connections, max.	16
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	96
Number of slots per interface, max.	1 632
Services	
OCI VIOCO	

— PG/OP communication	Yes
— Routing	Yes; S7 routing
 Global data communication 	No
 S7 basic communication 	No
— S7 communication	Yes
 S7 communication, as client 	Yes
 S7 communication, as server 	Yes
— Equidistance	No
— Isochronous mode	No
— SYNC/FREEZE	No
 Activation/deactivation of DP slaves 	Yes; Approved for stand-alone operation only, not in conjunction with CiR (Configuration in Run)
Direct data exchange (slave-to-slave)	No
communication)	V
— DPV1	Yes
Address area	4 F00 h. t-
— Inputs, max.	1 536 byte
— Outputs, max.	1 536 byte
User data per DP slave	244 byta
— User data per DP slave, max.	244 byte
— Inputs, max.	244 byte
— Outputs, max.	244 byte
— Slots, max.	244
— per slot, max.	128 byte
2. Interface	
Interface type	Integrated Ethernet interface
Isolated	Yes
automatic detection of transmission rate	Yes; Autosensing
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	No
Interface types	
 Number of ports 	2
integrated switch	Yes
Protocols	
 PROFINET IO Controller 	No
PROFINET IO Device	No
PROFINET CBA	No
Open IE communication	Yes
Web server	No
Media redundancy	Yes
Open IE communication	
 Number of connections, max. 	118
 Local port numbers used at the system end 	0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535
Keep-alive function, supported	Yes
3. Interface	
Interface type	Integrated Ethernet interface
Isolated	Yes
automatic detection of transmission rate	Yes; Autosensing
Autonegotiation	Yes
Autocrossing	Yes
Number of connection resources	120
Interface types	
Number of ports	2
• integrated switch	Yes
Protocols	
PROFINET IO Controller	No
PROFINET IO Device	No

PROFINET CBA	No
Open IE communication	Yes
Web server	No
Media redundancy	Yes
Open IE communication	
 Number of connections, max. 	118
 Local port numbers used at the system end 	0, 20, 21, 25, 102, 135, 161, 34962, 34963, 34964, 65532, 65533, 65534, 65535
Keep-alive function, supported	Yes
4. Interface	
Interface type	Pluggable synchronization submodule (FO)
Plug-in interface modules	Synchronization module 6ES7960-1AA06-0XA0, 6ES7960-1AB06-0XA0 or 6ES7960-1AA08-0XA0
5. Interface	
Interface type	Pluggable synchronization submodule (FO)
Plug-in interface modules	Synchronization module 6ES7960-1AA06-0XA0, 6ES7960-1AB06-0XA0 or 6ES7960-1AA08-0XA0
Protocols	
Supports protocol for PROFINET IO	No
PROFINET CBA	No
PROFIsafe	Yes
PROFIBUS	Yes
AS-Interface	Yes; Via add-on
Redundancy mode	
Media redundancy	
Switchover time on line break, typ.	< 200 ms
Number of stations in the ring, max.	50
SIMATIC communication	
• S7 routing	Yes
Open IE communication	
• TCP/IP	Yes
Number of connections, max.	118
— Data length, max.	32 kbyte
several passive connections per port,	Yes
supported	1 65
• ISO-on-TCP (RFC1006)	Yes
Number of connections, max.	118
— Data length, max.	32 kbyte
• UDP	Yes
Number of connections, max.	118
— Data length, max.	1 472 byte
Further protocols	1120,0
MODBUS	Yes; Via add-on
Communication functions	. 30, Tid ddd oll
PG/OP communication	Yes
Number of connectable OPs without message	119
processing	119
 Number of connectable OPs with message processing 	119; When using Alarm_S/SQ and Alarm_D/DQ
Data record routing	Yes
S7 communication	
• supported	Yes
as server	Yes
- 00 000.	
as client	Yes
as client User data per job, max	Yes 64 khyte
• User data per job, max.	64 kbyte
User data per job, max.User data per job (of which consistent), max.	
 User data per job, max. User data per job (of which consistent), max. Number of connections 	64 kbyte 462 byte; 1 variable
User data per job, max.User data per job (of which consistent), max.	64 kbyte

- usable for OP communication - reserved for OP communication 17 message functions Number of login stations for message functions, max. Program alarms - Yes - Process diagnostic messages - Yes - Simultaneously active alarm—Stocks, max 1000; Simultaneously active alarm_St/SQ blocks or alarm_Dt/DQ blocks - Number of instances for alarm 8 and 87 - communication blocks, max Process control messages - Number of arrives that can log on simultaneously (SFB 37 AR_SEND) - Process control messages - Number of streakpoints - Status block - Status block - Status block - Status control - Ves - Number of variables, max Status control - Ves - Number of variables, max Number of entries, max Number of entries, max Number of entries, max Ves - Status control - Ves - Status control - Ves - Number of variables, max Ves - Number of entries, max Number of entries, max Ves - Number of entries, max Ves - Number of entries, max Ves - Status control - Ves - Number of entries, max Ves - Ves - CG mark - Ves - CG mark - Ves - CG mark - Ves - CG Mestry Cost-R) - CFC - Ves - CFC	— reserved for PG communication	1
		•
Street Statisticontrol variable Ves		1
Number of login stations for message functions, max Program alarms Program alarms Program alarms Prosess diagnostic messages simultaneously active Alarm-S blocks, max. Alarm & Bulcks I 0000; Simultaneously active alarm_SiSQ blocks or alarm_DIDQ blocks Alarm & Bulcks Number of instances for alarm 8 and S7 communication blocks, max. Process control messages Number of archives that can log on simultianeously (SFB 37 AR_SEND) Fest Commissioning functions Status block Single step Number of breakpoints Status block Single step Number of orbreakpoints Number of variable Ves Single step Ves Number of variable Ves Single step Number of variable Ves Single step Ves Status block Single step Ves Status block Ves Single step Ves Status block Single step Ves Status block Ves Single step Ves Status block Ves Status block Single step Ves Status block Ves Status block Ves Status block Ves Status block Single step Ves Status block Single step Ves Status block ATEX II 3G Ex na IIC T4 GG Ambient conditions Programming Command set Nesting levels Nesting		
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Process diagnostic messages simultaneously active Alarm-S blocks. max. Alarm 8-blocks Number of instances for alarm 8 and S7 communication blocks, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR, SEND) Test commissioning functions Status block Yes Number of breakpoints 4 Status/control variable Ves Number of breakpoints 4 Status/control variable Ves Number of breakpoints 4 Status/control variable Ves Number of breakpoints 4 Status/control variable Ves Number of breakpoints 4 Status/control variable Ves Number of breakpoints 4 Status/control variable Ves Number of breakpoints 4 Status/control variable Ves Number of breakpoints 4 Status/control variable Ves Number of breakpoints 4 Status/control variable Ves Number of breakpoints 4 Status/control variable Ves Number of breakpoints 4 Status/control variable Ves Number of variables, max. 7 Diagnostic buffer Present Ves Standards, approval Ves Standards, approvals, certificates CE mark CSA approval Ves CULus Ves CULus Ves CULus Ves CULus Ves CULus Ves CA approval Ves CCC Ves C	Program alarms	
Alarm 8-blocks • Number of instances for slarm 8 and S7 communication blocks, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR, SEND) Fost commissioning functions Status block Yes Status block Yes Number of orbreakpoints • Status/control variable • Variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. Service data • can be read out Standards, approvals, cortificates CE mark CSA approval UL approval Ves RCM (formerly C-TICK) KCA (formerly Gost-R) EAC (formerly Gost-R) EAC (formerly Gost-R) EAC (formerly Gost-R) ATEX Anbient conditions Ambient temperature during operation • min. • nax 70 °C Altitude during operation relating to sea level • Instancion is a see instruction list • Access to consistent data in process image • System function blocks (SFB) Programming ianguage — CFC Number of simultaneously active SFCs — RD_REC ESC SHC, Sep; per interface		Yes
Alarm 8-blocks • Number of instances for slarm 8 and S7 communication blocks, max. Process control messages Number of archives that can log on simultaneously (SFB 37 AR, SEND) Fost commissioning functions Status block Yes Status block Yes Number of orbreakpoints • Status/control variable • Variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. Service data • can be read out Standards, approvals, cortificates CE mark CSA approval UL approval Ves RCM (formerly C-TICK) KCA (formerly Gost-R) EAC (formerly Gost-R) EAC (formerly Gost-R) EAC (formerly Gost-R) ATEX Anbient conditions Ambient temperature during operation • min. • nax 70 °C Altitude during operation relating to sea level • Instancion is a see instruction list • Access to consistent data in process image • System function blocks (SFB) Programming ianguage — CFC Number of simultaneously active SFCs — RD_REC ESC SHC, Sep; per interface		1 000; Simultaneously active alarm S/SQ blocks or alarm D/DQ blocks
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Test commissioning functions	Process control messages	Yes
Status block Single step Yes Number of breakpoints 4 Status/control Status/control variable Variables Number of variables, max. Page 1 Service data Number of variables, max. Status/control variables, max. Page 1 Service data Number of entries, max. Saugo Service data Number of entries, max. Saugo Service data Standards, approvals, certificates CE mark CSA approval Ves Standards, approvals, certificates CULus FM approval Ves FM approval Ves FM approval Ves FAC (formerly C-TICK) Yes EAC (formerly C-TICK) Yes CCC Yes Luse in hazardous areas ATEX Anbient conditions Ambient temperature during operation • min. • max. Ambient temperature during operation • min. • max. Ambient temperature during operation • min. • max. Ambient doubles of the service o	Number of archives that can log on simultaneously (SFB 37 AR_SEND)	64
Single step Number of breakpoints 4 Status/control variable • Status/control variable • Variables • Number of variables, max. Diagnostic buffer • present • Number of entries, max. Service data • an be read out Standards, approvals, certificates CE mark CSA approval UL approval UL approval UL approval Ves CLIUS FM approval FM approval FM approval FM approval FM approval FM CCC Ves Use in hazardous areas • ATEX ATEX ATEX ATEX ATEX ATEX ATEX I AGE AND IIIST A IIST	Test commissioning functions	
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• Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters • Number of variables, max. 70 Diagnostic buffer Yes Yes • Number of entries, max. 3 200 Service data • Can be read out Yes Standards, approvals, certificates CE mark	Status/control	
Number of variables, max. Diagnostic buffer • present • Number of entries, max. 3 200 Service data • can be read out \$tandards, approvals, certificates CE mark CSA approval UL approval Ves CULUS FM approval Yes KC approval Yes KA approval Yes ATEX ATEX ATEX ATEX ATEX ATEX ATEX ATEX II 3G Ex nA IIC T4 GC Ambient conditions Ambient temperature during operation • min. • max. 70°C Altitude during operation relating to sea level • Installation altitude above sea level, max. Configuration Programming • Command set • Nesting levels • Nesting levels • System function blocks (SFB) Programming language — CFC Number of simultaneously active SFCs — RD_REC 8; SFC 59; per interface	 Status/control variable 	Yes
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Present Number of entries, max. 3 200 Service data can be read out Yes Standards, approvals, cortificates CE mark Yes UL approval Yes UL approval Yes CSA approval Yes RCM (formerly C-TICK) Yes EAC (formerly Gost-R) CCC Yes Use in hazardous areas ATEX ATEX II 3G Ex nA IIC T4 Gc Ambient conditions Ambient temperature during operation ini. 0 °C max. 70 °C Altitude during operation relating to sea level Installation altitude above sea level, max. Configuration Programming Command set Nesting levels System function blocks (SFB) See instruction list Programming language — CFC Number of simultaneously active SFCS - RD_REC Number of simultaneously active SFCS - RD_REC 8; SFC 59; per interface	Number of variables, max.	70
Number of entries, max. Service data	Diagnostic buffer	
e can be read out • can be read out Standards, approvals, certificates CE mark CSA approval UL approval Yes CULus FM approval Yes RCM (formerly C-TICK) KC approval Yes EAC (formerly Gost-R) CCC Yes Use in hazardous areas • ATEX 3G Ex nA IIC T4 Gc Ambient conditions Ambient temperature during operation • min. • max. ↑ 70 °C Attitude during operation relating to sea level • Installation altitude above sea level, max. Configuration Programming • Command set • Nesting levels • System function blocks (SFB) Programming language — CFC Number of simultaneously active SFCs — RD_REC Number of simultaneously active SFCs — RD_REC 8; SFC 59; per interface	present	Yes
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Standards, approvals, certificates CE mark CE mark CSA approval Yes CULus Yes CULus FM approval RCM (formerly C-TICK) Yes EAC (formerly Gost-R) CCC Yes Use in hazardous areas ATEX ATEX ATEX ATEX I 3G Ex nA IIC T4 Gc Ambient conditions Ambient temperature during operation min. min. max. 70 °C Altitude during operation relating to sea level Installation altitude above sea level, max. Configuration Programming Command set Access to consistent data in process image System function slocks (SFB) Programming language — CFC Number of simultaneously active SFCS — RD_REC 8; SFC 59; per interface	Service data	
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CSA approval UL approval Ves CULus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes EAC (formerly Gost-R) CCC Yes Use in hazardous areas • ATEX ATEX ATEX II 3G Ex nA IIC T4 GC Ambient conditions Ambient temperature during operation • min. • min. • max. 70 °C Altitude during operation relating to sea level • Installation altitude above sea level, max. Configuration Programming • Command set • Nesting levels • Access to consistent data in process image • System function blocks (SFB) Programming language — CFC Number of simultaneously active SFCS — RD_REC 8; SFC 59; per interface	Standards, approvals, certificates	
UL approval CULus FM approval Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes EAC (formerly Gost-R) CCC Yes Use in hazardous areas • ATEX ATEX II 3G Ex nA IIC T4 Gc Ambient conditions Ambient temperature during operation • min. • min. • max. Altitude during operation relating to sea level • Installation altitude above sea level, max. Configuration Programming • Command set • Nesting levels • System function s(SFC) • System function blocks (SFB) Programming language — CFC Number of simultaneously active SFCs — RD_REC 8; SFC 59; per interface	CE mark	Yes
UL approval CULus FM approval Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes EAC (formerly Gost-R) CCC Yes Use in hazardous areas • ATEX ATEX II 3G Ex nA IIC T4 Gc Ambient conditions Ambient temperature during operation • min. • min. • max. Altitude during operation relating to sea level • Installation altitude above sea level, max. Configuration Programming • Command set • Nesting levels • System function s(SFC) • System function blocks (SFB) Programming language — CFC Number of simultaneously active SFCs — RD_REC 8; SFC 59; per interface	CSA approval	Yes
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RCM (formerly C-TICK) KC approval FAC (formerly Gost-R) CCC Yes Use in hazardous areas • ATEX ATEX ATEX I 3G Ex nA IIC T4 Gc Ambient conditions Ambient temperature during operation • min. • min. • max. 70 °C Altitude during operation relating to sea level • Installation altitude above sea level, max. Configuration Programming • Command set • Nesting levels • Nesting levels • System functions (SFC) • System function blocks (SFB) Programming language — CFC Number of simultaneously active SFCS — RD_REC * Yes * SFC 59; per interface	FM approval	Yes
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- vvk_keU 8; SFU 58; per interrace	_	
	— WK_KEC	o, SEC 30, per interface

8; SFC 55; per interface
1; SFC 57; per interface
2; SFC 56; per interface
8; SFC 13; per interface
8; SFC 51
1; SFC 103; per interface
8; SFB 52; per interface
8; SFB 53; per interface
Yes
Yes; With S7 block Privacy
50 mm
290 mm
219 mm
1.1 kg

3/25/2021

last modified: