



Figure similar

\*\*\*\*\* spare part \*\*\*\*\* 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 use as spare part, without System Expansion Card

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	
<ul style="list-style-type: none"> <li>• SysLog</li> </ul>	Yes; via TCP; up to 4 receivers can be parameterized; buffer capacity max. 3 200 entries
<ul style="list-style-type: none"> <li>• Field interface security</li> </ul>	Yes
Engineering with	
<ul style="list-style-type: none"> <li>• Programming package</li> </ul>	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
Storage	
Work memory	
<ul style="list-style-type: none"> <li>• integrated</li> </ul>	4 Mbyte
<ul style="list-style-type: none"> <li>• integrated (for program)</li> </ul>	2 Mbyte
<ul style="list-style-type: none"> <li>• integrated (for data)</li> </ul>	2 Mbyte
<ul style="list-style-type: none"> <li>• expandable</li> </ul>	No
Load memory	
<ul style="list-style-type: none"> <li>• integrated RAM, max.</li> </ul>	48 Mbyte
<ul style="list-style-type: none"> <li>• expandable RAM</li> </ul>	No
Backup	
<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>	Yes; Program and data of the load memory
Battery	
Backup battery	

<ul style="list-style-type: none"> <li>• Backup current, typ.</li> <li>• Backup current, max.</li> <li>• Backup time, max.</li> </ul>	370 µA; Valid up to 40°C 2.1 mA Dealt with in the module data manual with the secondary conditions and the factors of influence
<ul style="list-style-type: none"> <li>• Feeding of external backup voltage to CPU</li> </ul>	No
<b>CPU processing times</b>	
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
<b>CPU-blocks</b>	
<b>DB</b>	
<ul style="list-style-type: none"> <li>• Number, max.</li> <li>• Size, max.</li> </ul>	16 000; Number range: 1 to 16 000 (= Instances) 64 kbyte
<b>FB</b>	
<ul style="list-style-type: none"> <li>• Number, max.</li> <li>• Size, max.</li> </ul>	8 000; Number range: 0 to 7999 64 kbyte
<b>FC</b>	
<ul style="list-style-type: none"> <li>• Number, max.</li> <li>• Size, max.</li> </ul>	8 000; Number range: 0 to 7999 64 kbyte
<b>OB</b>	
<ul style="list-style-type: none"> <li>• Number, max.</li> <li>• Size, max.</li> <li>• Number of free cycle OBs</li> <li>• Number of time alarm OBs</li> <li>• Number of delay alarm OBs</li> <li>• Number of cyclic interrupt OBs</li> <li>• Number of process alarm OBs</li> <li>• Number of DPV1 alarm OBs</li> <li>• Number of startup OBs</li> <li>• Number of asynchronous error OBs</li> <li>• Number of synchronous error OBs</li> </ul>	see instruction list 64 kbyte 1; OB 1 8; OB 10-17 4; OB 20-23 9; OB 30-38 (= Process Tasks) 8; OB 40-47 3; OB 55-57 2; OB 100, 102 9; OB 80-88 2; OB 121, 122
<b>Nesting depth</b>	
<ul style="list-style-type: none"> <li>• per priority class</li> <li>• additional within an error OB</li> </ul>	24 2
<b>Counters, timers and their retentivity</b>	
<b>IEC counter</b>	
<ul style="list-style-type: none"> <li>• present</li> <li>• Type</li> <li>• Number</li> </ul>	Yes SFB Unlimited (limited only by RAM capacity)
<b>IEC timer</b>	
<ul style="list-style-type: none"> <li>• present</li> <li>• Type</li> <li>• Number</li> </ul>	Yes SFB Unlimited (limited only by RAM capacity)
<b>Data areas and their retentivity</b>	
Retentive data area (incl. timers, counters, flags), max.	Total working and load memory (with backup battery)
<b>Flag</b>	
<ul style="list-style-type: none"> <li>• Size, max.</li> <li>• Retentivity available</li> <li>• Number of clock memories</li> </ul>	16 384 byte Yes 8; in 1 memory byte
<b>Local data</b>	
<ul style="list-style-type: none"> <li>• adjustable, max.</li> </ul>	64 kbyte
<b>Address area</b>	
<b>I/O address area</b>	
<ul style="list-style-type: none"> <li>• Inputs</li> <li>• Outputs</li> </ul>	2 048 byte 2 048 byte
<b>Process image</b>	
<ul style="list-style-type: none"> <li>• Inputs, default</li> </ul>	2 048 byte; not changeable

<ul style="list-style-type: none"> <li>• Outputs, default</li> </ul>	2 048 byte; not changeable
<ul style="list-style-type: none"> <li>• consistent data, max.</li> </ul>	244 byte
<ul style="list-style-type: none"> <li>• Access to consistent data in process image</li> </ul>	Yes
<b>Subprocess images</b>	
<ul style="list-style-type: none"> <li>• Number of subprocess images, max.</li> </ul>	15
<b>Hardware configuration</b>	
connectable OPs	119
Multicomputing	No
<b>Number of DP masters</b>	
<ul style="list-style-type: none"> <li>• integrated</li> </ul>	1
<ul style="list-style-type: none"> <li>• via CP</li> </ul>	0
<b>Number of IO Controllers</b>	
<ul style="list-style-type: none"> <li>• Integrated</li> </ul>	0
<ul style="list-style-type: none"> <li>• Via CP</li> </ul>	0
<b>Slots</b>	
<ul style="list-style-type: none"> <li>• required slots</li> </ul>	2
<b>Time of day</b>	
<b>Clock</b>	
<ul style="list-style-type: none"> <li>• Hardware clock (real-time)</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• retentive and synchronizable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Resolution</li> </ul>	1 ms
<ul style="list-style-type: none"> <li>• Deviation per day (buffered), max.</li> </ul>	1.7 s; Power off
<ul style="list-style-type: none"> <li>• Deviation per day (unbuffered), max.</li> </ul>	8.6 s; Power on
<b>Operating hours counter</b>	
<ul style="list-style-type: none"> <li>• Number</li> </ul>	16
<ul style="list-style-type: none"> <li>• Number/Number range</li> </ul>	0 to 15
<ul style="list-style-type: none"> <li>• Range of values</li> </ul>	SFCs 2, 3 and 4: 0 to 32767 hours SFC 101: 0 to 2 <sup>31</sup> - 1 hours
<ul style="list-style-type: none"> <li>• Granularity</li> </ul>	1 h
<ul style="list-style-type: none"> <li>• retentive</li> </ul>	Yes
<b>Clock synchronization</b>	
<ul style="list-style-type: none"> <li>• supported</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• to DP, master</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• on DP, device</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• in AS, master</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• in AS, device</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• on Ethernet via NTP</li> </ul>	Possible as client and master/slave via SIMATIC process
<b>Interfaces</b>	
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
<b>1. Interface</b>	
Interface type	RS 485 / PROFIBUS
Isolated	Yes
Number of connections	16
<b>Interface types</b>	
<ul style="list-style-type: none"> <li>• Output current of the interface, max.</li> </ul>	150 mA
<b>Protocols</b>	
<ul style="list-style-type: none"> <li>• PROFIBUS DP master</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• PROFIBUS DP device</li> </ul>	No
<b>PROFIBUS DP master</b>	
<ul style="list-style-type: none"> <li>• Number of connections, max.</li> </ul>	16
<ul style="list-style-type: none"> <li>• Transmission rate, max.</li> </ul>	12 Mbit/s
<ul style="list-style-type: none"> <li>• max. number of DP devices</li> </ul>	96
<ul style="list-style-type: none"> <li>• Number of slots per interface, max.</li> </ul>	1 632
<b>Services</b>	
<ul style="list-style-type: none"> <li>— PG/OP communication</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— Routing</li> </ul>	Yes; S7 routing
<ul style="list-style-type: none"> <li>— Global data communication</li> </ul>	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 devices	Yes; Approved for stand-alone operation only, not in conjunction with CiR (Configuration in Run)
— Direct data exchange (slave-to-slave communication)	No
— DPV1	Yes

#### Address area

— Inputs, max.	1 536 byte
— Outputs, max.	1 536 byte

#### User data per DP device

— user data per DP device, 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
Number of connections	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

### 3. Interface

Interface type	Integrated Ethernet interface
Isolated	Yes
automatic detection of transmission rate	Yes; Autosensing
Autonegotiation	Yes
Autocrossing	Yes
Number of connections	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
<b>Open IE communication</b>	
• 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
<b>4. Interface</b>	
Interface type	Pluggable synchronization submodule (FO)
Plug-in interface modules	Synchronization module 6ES7960-1AA06-0XA0, 6ES7960-1AB06-0XA0 or 6ES7960-1AA08-0XA0
<b>5. Interface</b>	
Interface type	Pluggable synchronization submodule (FO)
Plug-in interface modules	Synchronization module 6ES7960-1AA06-0XA0, 6ES7960-1AB06-0XA0 or 6ES7960-1AA08-0XA0
<b>Protocols</b>	
Supports protocol for PROFINET IO	No
PROFINET CBA	No
PROFIsafe	Yes
PROFIBUS	Yes
AS-Interface	Yes; Via add-on
<b>Redundancy mode</b>	
<b>Media redundancy</b>	
— Switchover time on line break, typ.	< 200 ms
— Number of stations in the ring, max.	50
<b>SIMATIC communication</b>	
• S7 routing	Yes
<b>Open IE communication</b>	
• TCP/IP	Yes
— Number of connections, max.	118
— Data length, max.	32 kbyte
— several passive connections per port, supported	Yes
• 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
<b>Further protocols</b>	
• MODBUS	Yes; Via add-on
<b>Communication functions</b>	
<b>PG/OP communication</b>	
• Number of connectable OPs with message processing	119; When using Alarm_S/SQ and Alarm_D/DQ
• Number of connectable OPs without message processing	119
Data record routing	Yes
<b>S7 communication</b>	
• supported	Yes
• as server	Yes
• as client	Yes
• User data per job, max.	64 kbyte
• User data per job (of which consistent), max.	462 byte; 1 variable
<b>Number of connections</b>	
• overall	120
• usable for PG communication	
— reserved for PG communication	1
• usable for OP communication	
— reserved for OP communication	1
<b>S7 message functions</b>	
Number of login stations for message functions, max.	119; max. 119 with Alarm_S/SQ and Alarm_D/DQ (OPs); max. 16 with Alarm_8, Alarm_8P, Notify and Notify_8 (e.g. WinCC)
Program alarms	Yes

Process diagnostic messages	Yes
simultaneously active Alarm_S blocks, max.	1 000; Simultaneously active alarm_S/SQ blocks or alarm_D/DQ blocks
Alarm 8-blocks	Yes
• Number of instances for alarm 8 and S7 communication blocks, max.	10 000
Process control messages	Yes
Number of archives that can log on simultaneously (SFB 37 AR_SEND)	64
<b>Test commissioning functions</b>	
Status block	Yes
Single step	Yes
Number of breakpoints	4
<b>Status/control</b>	
• Status/control variable	Yes
• Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
• Number of variables, max.	70
<b>Diagnostic buffer</b>	
• present	Yes
• Number of entries, max.	3 200
<b>Service data</b>	
• Can be read out	Yes
<b>Standards, approvals, certificates</b>	
CE mark	Yes
UKCA mark	Yes
CSA approval	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
CCC	Yes
<b>Use in hazardous areas</b>	
• ATEX	ATEX II 3G Ex ec IIC T4 Gc
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
• min.	0 °C
• max.	70 °C
<b>Altitude during operation relating to sea level</b>	
• Installation altitude above sea level, max.	2 000 m
<b>Configuration</b>	
<b>Programming</b>	
• Command set	see instruction list
• Nesting levels	7
• Access to consistent data in process image	Yes
• System functions (SFC)	see instruction list
• System function blocks (SFB)	see instruction list
<b>Programming language</b>	
— CFC	Yes
<b>Number of simultaneously active SFCs</b>	
— RD_REC	8; SFC 59; per interface
— WR_REC	8; SFC 58; per interface
— WR_PARM	8; SFC 55; per interface
— PARM_MOD	1; SFC 57; per interface
— WR_DPARM	2; SFC 56; per interface
— DPNRM_DG	8; SFC 13; per interface
— RDSYSST	8; SFC 51
— DP_TOPOL	1; SFC 103; per interface
<b>Number of simultaneously active SFBs</b>	

- RDREC 8; SFB 52; per interface
- WRREC 8; SFB 53; per interface

<b>Know-how protection</b>	
• User program protection/password protection	Yes
• Block encryption	Yes; With S7 block Privacy

<b>Dimensions</b>	
Width	50 mm
Height	290 mm
Depth	219 mm

<b>Weights</b>	
Weight, approx.	1.1 kg

<b>Classifications</b>			
		<b>Version</b>	<b>Classification</b>
	eClass	14	27-23-02-02
	eClass	12	27-23-02-02
	eClass	9.1	27-23-02-02
	eClass	9	27-23-02-02
	eClass	8	27-23-02-02
	eClass	7.1	27-23-02-02
	eClass	6	27-23-02-02
	ETIM	10	EC000236
	ETIM	9	EC000236
	ETIM	8	EC000236
	ETIM	7	EC000236

**Approvals / Certificates**

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