SIEMENS

Data sheet

6ES7214-1HF40-0XB0

SIMATIC S7-1200F, CPU 1214 FC, COMPACT CPU, DC/DC/RELAY, ONBOARD I/O: 14 DI 24V DC; 10 DO RELAY 2A; 2 AI 0 - 10V DC, POWER SUPPLY: DC 20.4 - 28.8 V DC, PROGRAM/DATA MEMORY 125 KB



General information	
Product type designation	CPU 1214FC DC/DC/Relay
Firmware version	V4.2
Engineering with	
 Programming package 	STEP 7 V14 or higher
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Load voltage L+	
 Rated value (DC) 	24 V
 permissible range, lower limit (DC) 	20.4 V
• permissible range, upper limit (DC)	28.8 V
Input current	
Current consumption, max.	1 500 mA; max. with all expansion accessories
Inrush current, max.	12 A; at 28.8 V DC
l²t	0.5 A ² ·s

Output current	
for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
Encoder cumply	
Encoder supply 24 V encoder supply	
• 24 V	L+ minus 4 V DC min.
2	
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
• integrated	125 kbyte
• expandable	No
Load memory	
• integrated	4 Mbyte
 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
Backup	
• present	Yes
maintenance-free	Yes
• without battery	Yes
CPU processing times	
for bit operations, typ.	0.085 μs; / instruction
for word operations, typ.	1.7 μs; / instruction
for floating point arithmetic, typ.	2.3 µs; / instruction
CPU-blocks	
Number of blocks (total)	DBs, FCs, FBs, counters and timers. The maximum number of
	addressable blocks ranges from 1 to 65535. There is no
OB	restriction, the entire working memory can be used
	Limited only by RAM for code
• Number, max.	Linited only by RAW for code
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags),	10 kbyte
max.	
Flag	
• Number, max.	8 kbyte; Size of bit memory address area
Local data	
 per priority class, max. 	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area	
Process image	
 Inputs, adjustable 	1 kbyte
 Outputs, adjustable 	1 kbyte

Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Digital inputs 14 Number of digital outputs 10 Number of digital outputs 10 Analog inputs 2 Input ranges 2 • Voitage Yes Input ranges (rated values), voltages 100 knms • O to +10 V Yes • Input ranges (rated values), voltages 100 knms • Shelded, max. 100 m; twisted and shielded Analog outputs 0 Output ranges, current 0 • O to 20 mA Yes Analog outputs 0 Number of analog nutputs 0 Output ranges, current • O to 20 mA • O to 20 mA Yes Analog volputs 0 Integration sint (per channet) 626 µs Encoder 2 Conversion time (per channet) 626 µs Encoders 2 • Zwire sensor Yes Interface lype PROFINET Interface lype PROFINET Physics Ethernet Isolated Yes Autorogolation Yes Autorogolation Yes Autorogolation Yes<	Hardware configuration	
Number of digital inputs 14 Digital outputs 10 Number of digital outputs 10 Analog inputs 2 Number of analog inputs 2 Input ranges Yes Input ranges (rated values), voltages 9 • 0 to +10 V Yes - Input resistance (0 to 10 V) 2100k ohms Cable length 9 • shielded, max. 100 m; twisted and shielded Analog outputs 0 Number of analog outputs 0 Output ranges, current 0 • 0 to 20 mA Yes Analog value generation for the inputs 10 bit Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable Yes • Conversion time (per channel) 625 µs Encoder 2 Connectable encoders 2 • 2 wire sensor Yes 1 Interface PROFINET Physics Ethernet Isolati Yes Autorogotation Yes Autorossing Yes • Number of ports 1 • Integrate switch Yes		3 comm. modules, 1 signal board, 8 signal modules
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Interface typePROFINETPhysicsEthernetIsolatedYesautomatic detection of transmission rateYesAutonegotiationYesAutocrossingYesInterface types1• Number of ports1• integrated switchYesFunctionality	1. Interface	
IsolatedYesautomatic detection of transmission rateYesAutonegotiationYesAutocrossingYesInterface typesYes• Number of ports1• integrated switchYesFunctionalityYes		PROFINET
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AutonegotiationYesAutocrossingYesInterface typesInterface types• Number of ports1• integrated switchYesFunctionalityInterface types	Isolated	Yes
Autocrossing Yes Interface types • Number of ports • Number of ports 1 • integrated switch Yes Functionality	automatic detection of transmission rate	Yes
Interface types • Number of ports • integrated switch Functionality	Autonegotiation	Yes
• Number of ports 1 • integrated switch Yes Functionality 1	Autocrossing	Yes
	Interface types	
Functionality	Number of ports	1
	 integrated switch 	Yes
PROFINET IO Controller Yes	Functionality	
	PROFINET IO Controller	Yes

PROFINET IO Device	Yes
 SIMATIC communication 	Yes
Open IE communication	Yes
Web server	Yes
Media redundancy	Yes; as MRP client
PROFINET IO Controller	
 Transmission rate, max. 	100 Mbit/s
Services	
— PG/OP communication	Yes
— S7 routing	Yes
— Isochronous mode	No
— Open IE communication	Yes
— IRT	No
— MRP	Yes; as MRP client
— MRPD	No
— PROFlenergy	No
— Prioritized startup	Yes
 — Number of IO devices with prioritized 	16
startup, max.	
 Number of connectable IO Devices, max. 	16
 — Number of connectable IO Devices for RT, 	16
max.	
— of which in line, max.	16
 Activation/deactivation of IO Devices 	Yes
— Number of IO Devices that can be	8
simultaneously activated/deactivated, max.	
— Updating time	The minimum value of the update time also depends on the

The minimum value of the update time also depends on the communication component set for PROFINET IO, on the number of IO devices and the quantity of configured user data.

PROFINET IO Device

Services	
— PG/OP communication	Yes
— S7 routing	Yes
— Isochronous mode	No
— Open IE communication	Yes
— IRT	No
— MRP	Yes; as MRP client
— MRPD	No
— PROFlenergy	Yes
— Shared device	Yes
 Number of IO Controllers with shared device, max. 	2

Protocols	
Supports protocol for PROFINET IO	Yes
PROFIBUS	Yes; CM 1243-5 required
AS-Interface	Yes; CM 1243-2 required
Protocols (Ethernet)	
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Further protocols	
• MODBUS	Yes
Communication functions	
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
• User data per job, max.	See online help (S7 communication, user data size)
Open IE communication	
• TCP/IP	Yes
— Data length, max.	8 kbyte
 ISO-on-TCP (RFC1006) 	Yes
— Data length, max.	8 kbyte
• UDP	Yes
— Data length, max.	1 472 byte
Web server	
• supported	Yes
 User-defined websites 	Yes
Number of connections	
• overall	16; dynamically
Test commissioning functions	
Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	
• Forcing	Yes
Diagnostic buffer	
• present	Yes
Traces	
 Number of configurable Traces 	2

• Memory size per trace, max.

512 kbyte

• Memory size per trace, max.	STZ KDyte	
Integrated Functions		
Number of counters	6	
Counting frequency (counter) max. 100 kHz		
Frequency meter	Yes	
controlled positioning	Yes	
Number of position-controlled positioning axes, max.	8	
Number of positioning axes via pulse-direction interface	Up to 4 with SB 1222	
PID controller	Yes	
Number of alarm inputs	4	
EMC		
Interference immunity against discharge of static electric	city	
 Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 	Yes	
— Test voltage at air discharge	8 kV	
— Test voltage at contact discharge	6 kV	
Interference immunity to cable-borne interference		
 Interference immunity on supply lines acc. to IEC 61000-4-4 	Yes	
 Interference immunity on signal cables acc. to IEC 61000-4-4 	Yes	
Interference immunity against voltage surge		
 on the supply lines acc. to IEC 61000-4-5 	Yes	
Interference immunity against conducted variable distur	bance induced by high-frequency fields	
 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 	Yes	
Emission of radio interference acc. to EN 55 011		
 Limit class A, for use in industrial areas 	Yes; Group 1	
 Limit class B, for use in residential areas 	Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011	
Standards, approvals, certificates		
CE mark	Yes	
UL approval	Yes	
cULus	Yes	
FM approval	Yes	
RCM (formerly C-TICK)	Yes	
KC approval	Yes	
Marine approval	Yes	
Highest safety class achievable in safety mode		
 Performance level according to ISO 13849-1 	PLe	
• SIL acc. to IEC 61508	SIL 3	

Ambient conditions	
Ambient temperature during operation	
• min.	-20 °C
● max.	60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical
 horizontal installation, min. 	-20 °C
 horizontal installation, max. 	60 °C
• vertical installation, min.	-20 °C
• vertical installation, max.	50 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
• Storage/transport, min.	660 hPa
 Storage/transport, max. 	1 139 hPa
 permissible operating height 	-1000 to 2000 m
Relative humidity	
• Operation, max.	95 %; no condensation
Vibrations	
Vibrations	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
 Operation, tested according to IEC 60068-2-6 	Yes
Shock test	
• tested according to IEC 60068-2-27	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
Extended ambient conditions	
Pollutant concentrations	
— SO2 at RH < 60% without condensation	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
Configuration	
Programming	
Programming language	
— LAD	Yes; incl. failsafe
— FBD	Yes; incl. failsafe
— SCL	Yes
Know-how protection	
 User program protection/password protection 	Yes
Copy protection	Yes
Block protection	Yes
Cycle time monitoring	
• adjustable	Yes
Dimensions	
Width	110 mm

Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	435 g
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