

SIPLUS S7-1200 CPU 1214FC DC/DC/DC -25...+55°C with conformal coating based on 6ES7214-1AF40-0XB0 . compact "CPU, DC/DC/DC, ""onboard I/O: 14" "DI 24 V DC;"" ""10 DO 24 V DC; 2" "AI 0-10 V DC, "" Power supply: DC" 20.4-28.8 V DC Program/data memory 125 KB



General information

Product type designation	CPU 1214FC DC/DC/DC
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Supply voltage

Rated value (DC)	Yes
<ul style="list-style-type: none"> • 24 V DC 	
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V

Load voltage L+

<ul style="list-style-type: none"> • Rated value (DC) 	24 V
<ul style="list-style-type: none"> • permissible range, lower limit (DC) 	20.4 V
<ul style="list-style-type: none"> • 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

Encoder supply

24 V encoder supply	
<ul style="list-style-type: none"> • 24 V 	L+ minus 4 V DC min.

Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
<ul style="list-style-type: none"> integrated 	125 kbyte
<ul style="list-style-type: none"> expandable 	No
Load memory	
<ul style="list-style-type: none"> integrated 	4 Mbyte
<ul style="list-style-type: none"> Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
Backup	
<ul style="list-style-type: none"> present 	Yes; maintenance-free
<ul style="list-style-type: none"> without battery 	Yes
CPU processing times	
for bit operations, typ.	0.08 μ s; / instruction
for word operations, typ.	1.7 μ s; / instruction
for floating point arithmetic, typ.	2.3 μ s; / Operation
CPU-blocks	
Number of blocks (total)	1 024; OBs, FBs, FCs, DBs
OB	
<ul style="list-style-type: none"> Number, max. 	Limited only by RAM for code
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	10 kbyte
Address area	
I/O address area	
<ul style="list-style-type: none"> Inputs 	1 024 byte
<ul style="list-style-type: none"> Outputs 	1 024 byte
Process image	
<ul style="list-style-type: none"> Inputs, adjustable 	1 024 byte
<ul style="list-style-type: none"> Outputs, adjustable 	1 024 byte
Hardware configuration	
Number of modules per system, max.	8; 3 comm. modules, 1 signal board, 8 signal modules
Time of day	
Clock	
<ul style="list-style-type: none"> Hardware clock (real-time) 	Yes
<ul style="list-style-type: none"> Backup time 	480 h; typical; 12 days min. at 40 °C
<ul style="list-style-type: none"> Deviation per day, max. 	\pm 60 s per month
Digital inputs	
Number of digital inputs	14

<ul style="list-style-type: none"> • of which inputs usable for technological functions 	6; HSC (High Speed Counting)
Source/sink input	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 40 °C, max.	14; 14 inputs at 55 °C horizontal or 45 °C vertical
Input voltage	
<ul style="list-style-type: none"> • Rated value (DC) • for signal "0" • for signal "1" 	24 V; DC at 4 mA nominal 5 V DC at 1 mA 15 V DC at 2.5 mA
Input current	
<ul style="list-style-type: none"> • for signal "1", typ. 	4 mA; nominal
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms
— at "0" to "1", min.	0.1 µs
— at "0" to "1", max.	20 ms
for interrupt inputs	
— parameterizable	Yes
for technological functions	
— parameterizable	Yes; Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz
Cable length	
<ul style="list-style-type: none"> • shielded, max. • unshielded, max. 	500 m; 50 m for technological functions 150 m; for technological functions: No
Digital outputs	
Number of digital outputs	10
<ul style="list-style-type: none"> • of which high-speed outputs 	4; 100 kHz Pulse Train Output
Short-circuit protection	No; to be provided externally
Switching capacity of the outputs	
<ul style="list-style-type: none"> • with resistive load, max. • on lamp load, max. 	0.5 A 5 W
Output voltage	
<ul style="list-style-type: none"> • for signal "0", max. • for signal "1", min. 	0.1 V; with 10 kOhm load 20 V
Output current	
<ul style="list-style-type: none"> • for signal "1" rated value • for signal "0" residual current, max. 	0.5 A 0.1 mA
Output delay with resistive load	
<ul style="list-style-type: none"> • "0" to "1", max. • "1" to "0", max. 	1 µs 3 µs

Switching frequency	
• of the pulse outputs, with resistive load, max.	100 kHz
Relay outputs	
• Number of relay outputs	0
Cable length	
• shielded, max.	500 m
• unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
Input ranges	
• Voltage	Yes; 0 to 10V
Input ranges (rated values), voltages	
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	
• shielded, max.	100 m; shielded, twisted pair
Analog outputs	
Number of analog outputs	0
Cable length	
• shielded, max.	100 m; shielded, twisted pair
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	10 bit
• Integration time, parameterizable	Yes
• Conversion time (per channel)	625 μs
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
1. Interface	
Interface type	PROFINET
Physics	Ethernet
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Protocols	
• PROFINET IO Controller	Yes
• PROFINET IO Device	Yes
PROFINET IO Controller	

Services	
— Number of IO devices with prioritized startup, max.	16

Protocols

Supports protocol for PROFINET IO	Yes
PROFIBUS	Yes; CM 1243-5 required

AS-Interface	Yes
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Protocols (Ethernet)

• TCP/IP	Yes
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Open IE communication

• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
• UDP	Yes

Web server

• supported	Yes
• User-defined websites	Yes

Further protocols

• MODBUS	Yes
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Communication functions

S7 communication

• supported	Yes
• as server	Yes
• as client	Yes

Test commissioning functions

Status/control

• Status/control variable	Yes
• Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters

Forcing

• Forcing	Yes
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Diagnostic buffer

• present	Yes
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Traces

• Number of configurable Traces	2; Up to 512 KB of data per trace are possible
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Integrated Functions

Number of counters	6
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Counting frequency (counter) max.	100 kHz
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Frequency measurement	Yes
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controlled positioning	Yes
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PID controller	Yes
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Number of alarm inputs	4
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Number of pulse outputs	4
Limit frequency (pulse)	100 kHz
Potential separation	
Potential separation digital inputs	
• Potential separation digital inputs	Functional isolation (Optocoupler)
Permissible potential difference	
between different circuits	500 V DC between 24 V DC and 5 V DC
EMC	
Interference immunity against discharge of static electricity	
• 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	
• Interference immunity on supply lines acc. to IEC 61000-4-5	Yes
Interference immunity against conducted variable disturbance 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
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
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	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• min.	-25 °C; = Tmin
• max.	55 °C; = Tmax

• horizontal installation, min.	-25 °C
• horizontal installation, max.	55 °C
• vertical installation, min.	-25 °C
• vertical installation, max.	45 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
• Operation, min.	795 hPa
• Operation, max.	1 080 hPa
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	2 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	2 g (m/s ²) wall mounting, 1 g (m/s ²) DIN rail
• Operation, tested according to IEC 60068-2-6	Yes
Shock testing	
• 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
Resistance	
Coolants and lubricants	
— Resistant to commercially available coolants and lubricants	Yes
Use in stationary industrial systems	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	

- Against chemically active substances acc. to EN 60654-4
- Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04

Yes; Class 3 (excluding trichlorethylene)

Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)

Remark

- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04

* The supplied plug covers must remain in place over the unused interfaces during operation!

Conformal coating

- Coatings for printed circuit board assemblies acc. to EN 61086
- Protection against fouling acc. to EN 60664-3
- Military testing according to MIL-I-46058C, Amendment 7
- Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A

Yes; Class 2 for high reliability

Yes; Type 1 protection

Yes; Discoloration of coating possible during service life

Yes; Conformal coating, Class A

Configuration

Programming

Programming language

- LAD
- FBD
- SCL

Yes; incl. failsafe

Yes; incl. failsafe

Yes

Cycle time monitoring

- adjustable

Yes

Dimensions

Width	110 mm
Height	100 mm
Depth	75 mm

Weights

Weight, approx. 415 g

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