

SIPLUS S7-1200 CPU 1214FC DC/DC/DC -25...+60 °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"> <li>24 V DC</li> </ul>	
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"> <li>Rated value (DC)</li> </ul>	24 V
<ul style="list-style-type: none"> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
<ul style="list-style-type: none"> <li>permissible range, upper limit (DC)</li> </ul>	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"> <li>24 V</li> </ul>	L+ minus 4 V DC min.

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
• without battery	Yes
CPU processing times	
for bit operations, typ.	0.08 µs; / instruction
for word operations, typ.	1.7 µs; / instruction
for floating point arithmetic, typ.	2.3 µs; / Operation
CPU-blocks	
Number of blocks (total)	1 024; OBs, FBs, FCs, DBs
OB	
• 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	
• Inputs	1 024 byte
• Outputs	1 024 byte
Process image	
• Inputs, adjustable	1 024 byte
• 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	
• Hardware clock (real-time)	Yes
• Backup time	480 h; typical; 12 days min. at 40 °C
• Deviation per day, max.	±60 s per month
Digital inputs	
Number of digital inputs	14

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

<b>Switching frequency</b>	
• of the pulse outputs, with resistive load, max.	100 kHz
<b>Cable length</b>	
• shielded, max.	500 m
• unshielded, max.	150 m
<b>Analog inputs</b>	
Number of analog inputs	2
<b>Input ranges</b>	
• Voltage	Yes; 0 to 10V
<b>Input ranges (rated values), voltages</b>	
• 0 to +10 V	Yes
• Input resistance (0 to 10 V)	≥100k ohms
<b>Cable length</b>	
• shielded, max.	100 m; shielded, twisted pair
<b>Analog outputs</b>	
Number of analog outputs	0
<b>Cable length</b>	
• shielded, max.	100 m; shielded, twisted pair
<b>Analog value generation for the inputs</b>	
<b>Integration and conversion time/resolution per channel</b>	
• Resolution with overrange (bit including sign), max.	10 bit
• Integration time, parameterizable	Yes
• Conversion time (per channel)	625 μs
<b>Encoder</b>	
<b>Connectable encoders</b>	
• 2-wire sensor	Yes
<b>1. Interface</b>	
Interface type	PROFINET
Physics	Ethernet
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
<b>Functionality</b>	
• PROFINET IO Controller	Yes
• PROFINET IO Device	Yes
<b>PROFINET IO Controller</b>	
<b>Services</b>	
— 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
Protocols (Ethernet)	
• TCP/IP	Yes
Open IE communication	
• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
• UDP	Yes
Web server	
• User-defined websites	Yes
Further protocols	
• MODBUS	Yes
Communication functions	
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
Web server	
• supported	Yes
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; Up to 512 KB of data per trace are possible
Integrated Functions	
Number of counters	6
Counting frequency (counter) max.	100 kHz
Frequency measurement	Yes
controlled positioning	Yes
PID controller	Yes
Number of alarm inputs	4
Number of pulse outputs	4
Limit frequency (pulse)	100 kHz

<b>Potential separation</b>	
Potential separation digital inputs	
• Potential separation digital inputs	Functional isolation (Optocoupler)
<b>Permissible potential difference</b>	
between different circuits	500 V DC between 24 V DC and 5 V DC
<b>EMC</b>	
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	
• on the 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
<b>Degree and class of protection</b>	
Degree of protection acc. to EN 60529	
• IP20	Yes
<b>Standards, approvals, certificates</b>	
CE mark	Yes
UL approval	Yes
cULus	Yes
FM approval	No
RCM (formerly C-TICK)	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
<b>Ambient conditions</b>	
Free fall	
• Fall height, max.	0.3 m; five times, in product package

<b>Ambient temperature during operation</b>	
• 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
<b>Ambient temperature during storage/transportation</b>	
• min.	-40 °C
• max.	70 °C
<b>Air pressure acc. to IEC 60068-2-13</b>	
• Operation, min.	795 hPa
• Operation, max.	1 080 hPa
<b>Altitude during operation relating to sea level</b>	
• 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)
<b>Relative humidity</b>	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
<b>Vibrations</b>	
• Vibration resistance during operation acc. to IEC 60068-2-6	2 g (m/s <sup>2</sup> ) wall mounting, 1 g (m/s <sup>2</sup> ) DIN rail
• Operation, tested according to IEC 60068-2-6	Yes
<b>Shock testing</b>	
• 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
<b>Resistance</b>	
<b>Coolants and lubricants</b>	
— Resistant to commercially available coolants and lubricants	Yes
<b>Use in stationary industrial systems</b>	
— 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, *
<b>Use on ships/at sea</b>	
— 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; \*

from supply voltage 1L+

— Note regarding classification of environmental conditions acc. to EN 60721

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

## Configuration

### Programming

#### Programming language

— LAD

Yes; incl. failsafe

— FBD

Yes; incl. failsafe

— SCL

Yes

### Cycle time monitoring

• adjustable

Yes

## Dimensions

Width

110 mm

Height

100 mm

Depth

75 mm

## Weights

Weight, approx.

415 g

**last modified:**

05/18/2018