



SIMATIC S7-1200F, CPU 1214 FC, compact CPU, DC/DC/relay, onboard I/O: 14 DI 24 V DC; 10 DO relay 2 A; 2 AI 0-10 V DC, Power supply: DC 20.4-28.8V DC, Program/data memory 125 KB

General information	
Product type designation	CPU 1214FC DC/DC/Relay
Firmware version	V4.5
Engineering with	
<ul style="list-style-type: none"> Programming package 	STEP 7 V17 or higher
Supply voltage	
Rated value (DC)	
<ul style="list-style-type: none"> 24 V DC 	Yes
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) permissible range, lower limit (DC) permissible range, upper limit (DC) 	24 V 20.4 V 28.8 V
Input current	
Current consumption (rated value)	500 mA; CPU only
Current consumption, max.	1 500 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V
I ² t	0.8 A ² ·s
Output current	
for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
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 expandable 	125 kbyte No
Load memory	
<ul style="list-style-type: none"> integrated Plug-in (SIMATIC Memory Card), max. 	4 Mbyte with SIMATIC memory card
Backup	
<ul style="list-style-type: none"> present maintenance-free without battery 	Yes Yes 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; / 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 restriction, the entire working memory can be used

OB

- Number, max.

Limited only by RAM for code

Data areas and their retentivity

Retentive data area (incl. timers, counters, flags), max.

14 kbyte

Flag

- Size, 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
- Outputs, adjustable

1 kbyte

1 kbyte

Hardware configuration

Number of modules per system, max.

3 comm. modules, 1 signal board, 8 signal modules

Time of day

Clock

- Hardware clock (real-time)
- Backup time
- Deviation per day, max.

Yes

480 h; Typical

±60 s/month at 25 °C

Digital inputs

Number of digital inputs

14; Integrated

- 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

Input voltage

- Rated value (DC)
- for signal "0"
- for signal "1"

24 V

5 V DC at 1 mA

15 V DC at 2.5 mA

Input delay (for rated value of input voltage)

for standard inputs

— parameterizable

0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four

— at "0" to "1", min.

0.2 ms

— at "0" to "1", max.

12.8 ms

for interrupt inputs

— parameterizable

Yes

for technological functions

— parameterizable

Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz

Cable length

- shielded, max.
- unshielded, max.

500 m; 50 m for technological functions

300 m; for technological functions: No

Digital outputs

Number of digital outputs

10; Relays

Switching capacity of the outputs

- with resistive load, max.
- on lamp load, max.

2 A

30 W with DC, 200 W with AC

Output delay with resistive load

- "0" to "1", max.
- "1" to "0", max.

10 ms; max.

10 ms; max.

Relay outputs

- Number of relay outputs
- Number of operating cycles, max.

10

mechanically 10 million, at rated load voltage 100 000

Cable length

- shielded, max.

500 m

• unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
Input ranges	
• Voltage	Yes
Input ranges (rated values), voltages	
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	
• shielded, max.	100 m; twisted and shielded
Analog outputs	
Number of analog outputs	0
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
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Interface types	
• RJ 45 (Ethernet)	Yes
• Number of ports	1
• integrated switch	No
Protocols	
• PROFINET IO Controller	Yes
• PROFINET IO Device	Yes
• SIMATIC communication	Yes
• Open IE communication	Yes; Optionally also encrypted
• Web server	Yes
• Media redundancy	No
PROFINET IO Controller	
• Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFIenergy	No
— Prioritized startup	Yes
— Number of IO devices with prioritized startup, max.	16
— Number of connectable IO Devices, max.	16
— Number of connectable IO Devices for RT, max.	16
— of which in line, max.	16
— Activation/deactivation of IO Devices	Yes
— Number of IO Devices that can be simultaneously activated/deactivated, max.	8
— Updating time	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; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFIenergy	Yes
— Shared device	Yes

— Number of IO Controllers with shared device, max.	2
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIsafe	Yes
PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
OPC UA	Yes; OPC UA Server
AS-Interface	Yes; CM 1243-2 required
Protocols (Ethernet)	
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
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
OPC UA	
• Runtime license required	Yes; "Basic" license required
• OPC UA Server	Yes; data access (read, write, subscribe), method call, runtime license required
— Application authentication	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
— Number of sessions, max.	10
— Number of subscriptions per session, max.	5
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
— Number of server methods, max.	20
— number of monitored items, recommended max.	1 000
— Number of server interfaces, max.	2
— Number of nodes for user-defined server interfaces, max.	2 000
Further protocols	
• MODBUS	Yes
communication functions / header	
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
• User data per job, max.	See online help (S7 communication, user data size)
Number of connections	
• overall	PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64 max
Test commissioning functions	
Status/control	
• Status/control variable	Yes
• Variables	inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters
Forcing	
• Forcing	Yes; peripheral inputs/outputs (without fail-safe)
Diagnostic buffer	
• present	Yes
Traces	

<ul style="list-style-type: none"> • Number of configurable Traces • Memory size per trace, max. 	2 512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	
<ul style="list-style-type: none"> • RUN/STOP LED • ERROR LED • MAINT LED 	Yes Yes Yes
Integrated Functions	
Frequency measurement	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
Potential separation	
Potential separation digital inputs	
<ul style="list-style-type: none"> • Potential separation digital inputs • between the channels, in groups of 	500V AC for 1 minute 1
Potential separation digital outputs	
<ul style="list-style-type: none"> • Potential separation digital outputs • between the channels • between the channels, in groups of 	Relays No 2
EMC	
Interference immunity against discharge of static electricity	
<ul style="list-style-type: none"> • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 <ul style="list-style-type: none"> — Test voltage at air discharge — Test voltage at contact discharge 	Yes 8 kV 6 kV
Interference immunity to cable-borne interference	
<ul style="list-style-type: none"> • Interference immunity on supply lines acc. to IEC 61000-4-4 • Interference immunity on signal cables acc. to IEC 61000-4-4 	Yes Yes
Interference immunity against voltage surge	
<ul style="list-style-type: none"> • Interference immunity on supply lines acc. to IEC 61000-4-5 	Yes
Interference immunity against conducted variable disturbance induced by high-frequency fields	
<ul style="list-style-type: none"> • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 	Yes
Emission of radio interference acc. to EN 55 011	
<ul style="list-style-type: none"> • Limit class A, for use in industrial areas • Limit class B, for use in residential areas 	Yes; Group 1 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	
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	
<ul style="list-style-type: none"> • Performance level according to ISO 13849-1 • SIL acc. to IEC 61508 	PLe SIL 3
Ambient conditions	
Free fall	
<ul style="list-style-type: none"> • Fall height, max. 	0.3 m; five times, in product package
Ambient temperature during operation	
<ul style="list-style-type: none"> • min. • max. 	0 °C 55 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical

• horizontal installation, min.	0 °C
• horizontal installation, max.	55 °C
• vertical installation, min.	0 °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
• Storage/transport, min.	660 hPa
• Storage/transport, max.	1 080 hPa
Altitude during operation relating to sea level	
• Installation altitude, min.	-1 000 m
• Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	
• Operation, max.	95 %; no condensation
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
Pollutant concentrations	
• SO ₂ at RH < 60% without condensation	SO ₂ : < 0.5 ppm; H ₂ S: < 0.1 ppm; RH < 60% condensation-free
configuration / header	
configuration / programming / header	
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
Access protection	
• protection of confidential configuration data	Yes
• Protection level: Write protection	Yes
• Protection level: Read/write protection	Yes
• Protection level: Complete protection	Yes
programming / cycle time monitoring / header	
• adjustable	Yes
Dimensions	
Width	110 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	435 g
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