

SIMATIC S7-1200F, CPU 1215 FC, COMPACT CPU, DC/DC/DC, 2 PROFINET PORT, ONBOARD I/O: 14 DI 24VDC; 10 DO 24V DC 0.5A; 2 AI 0-10V DC, 2 AO 0-20MA DC, POWER SUPPLY: DC 20.4 - 28.8 V DC, PROGRAM/DATA MEMORY 150 KB



General information	
Product type designation	CPU 1215FC DC/DC/DC
Engineering with	
<ul style="list-style-type: none"> Programming package 	STEP 7 V13 SP1 or higher
Display	
with display	No
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, 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	
• 24 V	L+ minus 4 V DC min.
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
• integrated	150 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; / Operation
for word operations, typ.	1.7 µs; / Operation
for floating point arithmetic, typ.	2.3 µs; / Operation
CPU-blocks	
Number of blocks (total)	1 024; 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 in total (incl. times, 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 kbyte
• Outputs, adjustable	1 024 kbyte
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 clock)	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
• of which inputs usable for technological functions	6; HSC (High Speed Counting)
integrated channels (DI)	14
m/p-reading	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	
• Rated value (DC)	24 V; DC at 4 mA nominal
• for signal "0"	5 V DC at 1 mA
• for signal "1"	15 V DC at 2.5 mA
Input current	
• 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 counter/technological functions	
— parameterizable	Yes; Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz
Cable length	
• shielded, max.	500 m; 50 m for technological functions
• unshielded, max.	300 m; For technological functions: No
Digital outputs	
Number of digital outputs	10
• of which high-speed outputs	4; 100 kHz Pulse Train Output
integrated channels (DO)	10
Short-circuit protection	No; to be provided externally
Switching capacity of the outputs	
• with resistive load, max.	0.5 A
• on lamp load, max.	5 W
Output voltage	

• for signal "0", max.	0.1 V; with 10 kOhm load
• for signal "1", min.	20 V
Output current	
• for signal "1" rated value	0.5 A
• for signal "0" residual current, max.	0.1 mA
Output delay with resistive load	
• "0" to "1", max.	1 µs
• "1" to "0", max.	3 µs
Switching frequency	
• of the pulse outputs, with resistive load, max.	100 kHz
Cable length	
• shielded, max.	500 m
• unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
integrated channels (AI)	2; 0 to 10V
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	2
integrated channels (AO)	2; 0 to 20 mA
Cable length	
• shielded, max.	100 m; shielded, twisted pair
Analog value generation	
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, 2-port switch, 2*RJ45

Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Functionality	
• 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
Protocols (Ethernet)	
• TCP/IP	Yes
Further protocols	
• MODBUS	Yes
Communication functions	
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes
Open IE communication	
• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
• UDP	Yes
Web server	
• supported	Yes
• User-defined websites	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 meter	Yes
controlled positioning	Yes
PID controller	Yes
Number of alarm inputs	4
Number of pulse outputs	4
Limit frequency (pulse)	100 kHz

Potential separation

Potential separation digital inputs	
<ul style="list-style-type: none"> • Potential separation digital inputs 	Functional isolation (Optocoupler)

Permissible potential difference

between different circuits	500 V DC between 24 V DC and 5 V DC
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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 	Yes
— Test voltage at air discharge	8 kV
— Test voltage at contact discharge	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 	Yes
<ul style="list-style-type: none"> • Interference immunity on signal cables acc. to IEC 61000-4-4 	Yes
Interference immunity against voltage surge	
<ul style="list-style-type: none"> • on the 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 	Yes; Group 1
<ul style="list-style-type: none"> • 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

Degree of protection acc. to EN 60529	
<ul style="list-style-type: none"> • IP20 	Yes

Standards, approvals, certificates

CE mark	Yes
UL approval	Yes

cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
Marine approval	
• Marine approval	Yes
Ambient conditions	
Free fall	
• Drop height, max. (in packaging)	0.3 m; five times, in product package
Ambient temperature during operation	
• min.	0 °C
• max.	55 °C
• horizontal installation, min.	0 °C
• horizontal installation, max.	55 °C
• vertical installation, min.	0 °C
• vertical installation, max.	55 °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
Relative humidity	
• Operation, max.	95 %; no condensation
• permissible range (without condensation) at 25 °C	95 %
Vibrations	
• Vibrations	2G wall mounting, 1G 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	
— SO ₂ at RH < 60% without condensation	SO ₂ : < 0.5 ppm; H ₂ S: < 0.1 ppm; RH < 60% condensation-free
Configuration	
Programming	
Programming language	
— LAD	Yes; incl. failsafe
— FBD	Yes; incl. failsafe

— SCL

Yes

Cycle time monitoring

- adjustable

Yes

Dimensions

Width

130 mm

Height

100 mm

Depth

75 mm

Weights

Weight, approx.

520 g

last modified:

24.02.2016