SIEMENS

Data sheet



Figure similar

SIMATIC S7-1200, CPU 1215C, compact CPU, DC/DC/DC, 2 PROFINET ports, onboard I/O: 14 DI 24 V DC; 10 DO 24 V DC; 0.5A; 2 AI 0-10 V DC, 2 AO 0-20 mA DC, Power supply: DC 20.4-28.8V DC, Program/data memory 125 KB

General information	
Product type designation	CPU 1215C DC/DC/DC
Firmware version	V4.5
Engineering with	
 Programming package 	STEP 7 V17 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
Reverse polarity protection	Yes
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 (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 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 supply	
24 V encoder supply	
• 24 V	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 	Yes
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; / 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 	1 kbyte
 Outputs, adjustable 	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)	Yes
Backup time	480 h; Typical
Deviation per day, max.	±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)	24 V
• for signal "0"	5 V DC at 1 mA
• for signal "1"	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
A HON A MATERIAL TO	in groups of four
— at "0" to "1", min.	0.2 ms
— at "0" to "1", max.	12.8 ms
for interrupt inputs	N.
— parameterizable	Yes
for technological functions	0. 1 1 0.0 40011. 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
— parameterizable	Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz
Cable length	FOO my FO or factor backers in 15 or 15
• 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
Limitation of inductive shutdown voltage to	L+ (-48 V)
Switching capacity of the outputs	0.5.4
with resistive load, max.	0.5 A
on lamp load, max.	5 W

Output voltage	
Output voltage	0.1 \tag{with 10 kOhm load}
• for signal "0", max.	0.1 V; with 10 kOhm load
• for signal "1", min.	20 V
Output current	0.5.4
• 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.	5 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
Input ranges (rated values), voltages	
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	- TOOK OHING
-	100 m; twisted and chiefded
shielded, max.	100 m; twisted and shielded
Analog outputs	
Number of analog outputs	2
Output ranges, current	
• 0 to 20 mA	Yes
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
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	10 bit
	10 bit
Encoder	
Connectable encoders	V
• 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
RJ 45 (Ethernet)Number of ports	
 Number of ports 	2
Number of portsintegrated switch	
Number of ports integrated switch Protocols	2 Yes
 Number of ports integrated switch Protocols PROFINET IO Controller 	2 Yes
 Number of ports integrated switch Protocols PROFINET IO Controller PROFINET IO Device 	2 Yes Yes Yes
 Number of ports integrated switch Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication 	2 Yes Yes Yes Yes
 Number of ports integrated switch Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication 	2 Yes Yes Yes Yes Yes Yes Yes; Optionally also encrypted
 Number of ports integrated switch Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server 	2 Yes Yes Yes Yes Yes Yes; Optionally also encrypted Yes
 Number of ports integrated switch Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy 	2 Yes Yes Yes Yes Yes Yes; Optionally also encrypted
 Number of ports integrated switch Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server 	2 Yes Yes Yes Yes Yes Yes Yes; Optionally also encrypted Yes

Sarvicas	
Services	Voc. openintian with TLC V/4 2 are calcuted
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFlenergy	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, 	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
	communication component set for PROFINET IO, on the number of IO devices and the quantity of configured user data.
PROFINET IO Device	across and the quantity or coming a contract
Services	
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes
— Shared device	Yes
Number of IO Controllers with shared device,	2
max.	
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIsafe	No
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)	100, 011 1210 210941104
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	165
Media redundancy	
— MRP	Yes; as MRP redundancy manager and/or MRP client
— MRPD	No
SIMATIC communication	110
• S7 routing	Yes
Open IE communication	169
TCP/IP	Yes
— Data length, max.	8 kbyte
ISO-on-TCP (RFC1006) Data longth, may	Yes 8 kbyto
— Data length, max.	8 kbyte
UDP Data longth, max	Yes
— Data length, max.	1 472 byte
Web server	Von
supported User defined websites	Yes
User-defined websites	Yes
OPC UA	Voc. "Pagio" license required
Runtime license required ODC HA Server	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
	anonymous or by assiring a passivora

- Number of seasorings pression, max Number of subscriptions pression, max Sampling interval, min Publishing interval, min Number of server methods, max Number of server methods, max Number of monitored terms, max Number of server interfaces, max Number of server interfaces, max Number of server interfaces, max Number of publishing threating the server interfaces, max Number of publishing threating threa		
- Sampling interval, min Publishing interval, min Number of server methods, max Number of server methods, max Number of server interfess, max Ves - as server - as scient - as server - as scient - Ves - as server - as scient - Ves - as server - as scient - overall - PG Connections: 4 reserved / 4 max. HMI Connections: 12 reserved / 18 max. ST Connections. 8 reserved / 14 max. We Dornections: 12 reserved / 18 max. ST Connections. 8 reserved / 14 max. We Dornections: 28 reserved / 14 max. We Dornections: 28 reserved / 14 max. We Dornections: 34 reserved / 64 max Number of configurable of the server of server	Number of sessions, max.	10
- Publishing interval, min. 200 ms Number of server methods, max. 20 Number of server methods, max. 20 Number of server interfaces, max. 20 Number of nonotinod latens, max. 30	 Number of subscriptions per session, max. 	50
- Number of server inerhods, max Number of server inerfaces, max See online help (\$7 communication, user data size) - Number of connections - Overall - Yes - as client - Overall - Yes online help (\$7 communication, user data size) - Number of connections - Overall - Yes online help (\$7 communication, user data size) - Number of connections - Overall - Yes online help (\$7 communication, user data size) - Number of server inerfaces, and inerfaces, max Number of server inerfaces, max Number of positioning axes, max Number of positioning a	— Sampling interval, min.	100 ms
- Number of monitored items, max	— Publishing interval, min.	200 ms
- Number of server interfaces, max Number of nodes for user-defined server interfaces, max. Further protocols • NODBUS Ves communication functions / header S7 communication functions / header S7 communication functions / header • upported • user data per job, max. See online help (S7 communication, user data size) Number of connections • overall PG connections - Ves so scient • overall PG connections - Ves contine help (S7 communication, user data size) Number of connections • overall PG connections - Vese contine help (S7 communication, user data size) Number of connections • overall PG connections - Vese contine help (S7 communication, user data size) Number of connections - Vese contine help (S7 communication, user data size) Number of connections - Vese contine help (S7 communication, user data size) Number of connections - Vese contine help (S7 communication, user data size) Number of configurations Porcent - Vese	 Number of server methods, max. 	20
- Number of nodes for user-defined server interfaces, max. Further protocols • NODBUS • NODBUS * Ves * Ormanication functions / header **Formanication functions / yes • as server • as client • User data per job, max. **Number of connections • Overall **PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; \$7 Connections; 6 reserved / 14 max; Wes • Overall **PG Connections: 5 reserved / 14 max; HMI Connections: 12 reserved / 18 max; \$7 Connections; 6 reserved / 14 max; Wes • Connections: 0 reserved / 14 max; HMI Connections: 12 reserved / 18 max; \$7 Connections; 6 reserved / 14 max; HMI Connections: 34 reserved / 18 max; 5 reserved / 14 max; HMI Connections: 34 reserved / 18 max; 5 reserved / 14 max; HMI Connections: 34 reserved / 1	 Number of monitored items, max. 	1 000
interfaces, max. Further protocols • MODBUS • MODBUS • MODBUS • MODBUS • SET Communication • Supported • Sa server • Sa client • User data per job, max. • Overall • Sa server • See online help (\$7 communication, user data size) Number of connections • Overall	 Number of server interfaces, max. 	2
### WINDERS * MODBUS * MODBUS * MODBUS * MODBUS * MODBUS * Communication functions / header * S7 communication * * supported * as server * * as sizent * User data per job, max. * Number of connections * overall * PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 connections: 5 reserved / 14 max; CPU LB connections: 5 reserved / 19 max; Total Connections: 7 reserved / 18 max; S7 connections: 6 reserved / 10 max; Total Connections: 7 reserved / 18 max; S7 connections: 8 reserved / 10 max; Total Connections: 9 reserved /		2 000
MODBUS ves communication • supported ves - as client - User data per job, max. Number of connections • overall ves - Statuscontrol variable - Variables - Forcing - Forcing - Number of configurable Traces - Number of		
Communication functions / header 7 communication - supported - sa server - sa cilent - User data per job, max. Number of connections - overall PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 4 max; Open User Connections: 8 reserved / 14 max; Open User Connections: 9 re	·	Vac
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18 max; S7 Connections: 8 reserved / 14 max; Upen User Connections: 8 reserved / 14 max; Upen User Connections: 34 reserved / 64 max Test commissioning functions Status/control variable	Number of connections	
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Status/control variable Ves Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Fo	Test commissioning functions	
Forcing For		
Forcing Forcin	Status/control variable	Yes
Forcing Forcin	Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
● Forcing Yes Diagnostic buffer ● present Yes Traces ● Number of configurable Traces 2 ● Memory size per trace, max. 512 kbyte Interrupts/diagnostics/status information Diagnostics indication LED ● RUN/STOP LED Yes ● ERROR LED Yes ● MAINT LED Yes Integrated Functions Frequency measurement Yes Controlled positioning Aves via pulse-direction interface 4; With integrated outputs PID controller PID controller Number of positioning axes via pulse-direction interface 4. With integrated outputs PID controller Potential separation digital inputs ● Potential separation digital inputs ● Potential separation digital inputs ● Potential separation digital outputs ● Potential separation digital outputs ● Potential separation digital outputs ● between the channels, in groups of 1 Potential separation digital outputs ● between the channels No • between the channels Sharage of static electricity • Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity	Forcing	, , , , , , , , , , , , , , , , , , ,
Diagnostic buffer • present • present Traces • Number of configurable Trace, max. 512 kbyte Interrupts/diagnostics/status information Diagnostics indication LED • RUN/STOP LED • RUN/STOP LED • PROW/STOP LED • PROW/STOP LED • REROR LED • MAINT LED *Yes • MAINT LED *Trequency measurement *Yes controlled positioning Yes Number of position-controlled positioning axes, max. Number of position-controlled positioning axes, max. *Number of positioning axes via pulse-direction interface PID controller *Yes Number of alarm inputs 4 Number of alarm inputs 4 Number of alarm inputs 4 Number of pulse outputs Limit frequency (pulse) *Potential separation Potential separation Potential separation digital inputs • Potential separation digital inputs • Potential separation digital outputs • Potential separation digital outputs • between the channels, in groups of 1 Potential separation digital outputs • between the channels, in groups of 1 EMC Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity		Yes
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Interrupts/diagnostics/status Information Diagnostics indication LED RUN/STOP LED ERROR LED Yes ERROR LED Yes MAINT LED Requency measurement Yes controlled positioning Yes Number of position-controlled positioning axes, max. Number of position-controlled positioning axes via pulse-direction interface PID controller Yes Number of positioning axes via pulse-direction interface PID controller Ves Number of pulse outputs 4 Number of pulse outputs 4 Limit frequency (pulse) Potential separation Potential separation digital inputs Potential separation digital inputs Potential separation digital outputs Potential separation digital outp	_	
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Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 Yes	EMC	
Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 Yes		
— Test voltage at air discharge 8 kV	Interference immunity against discharge of static	Yes
	Test voltage at air discharge	8 kV

	• • • •
— Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	V
 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	Yes
61000-4-5	
Interference immunity against conducted variable disturbance	e 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	11 20
CE mark	Yes
	Yes
UL approval	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
Ambient conditions	
Free fall	
● Fall height, max.	0.3 m; five times, in product package
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	
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	1 000 iii u
	-1 000 m
Installation altitude, min.	
Installation altitude, max. Polative humidity	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	05 % no condensation
Operation, max. Vibrations	95 %; no condensation
Vibrations • Vibration registance during energies are to IEC	2 a (m/o²) wall maunting 1 a (m/o²) DIM roil
Vibration resistance during operation acc. to IEC 60068-2-6	2 g (m/s²) wall mounting, 1 g (m/s²) 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	
SO2 at RH < 60% without condensation	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
configuration / header	
configuration / programming / header	

Programming language		
— LAD	Yes	
— FBD	Yes	
— 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	130 mm	
Height	100 mm	
Depth	75 mm	
Weights		
Weight, approx.	500 g	

4/1/2022

last modified: