SIEMENS

Data sheet

6ES7211-1BE40-0XB0



SIMATIC S7-1200, CPU 1211C, compact CPU, AC/DC/relay, onboard I/O: 6 DI 24 V DC; 4 DO relay 2A; 2 AI 0-10 V DC, Power supply: AC 85-264 V AC at 47-63 Hz, Program/data memory 50 KB

Figure similar

General information	
Product type designation	CPU 1211C AC/DC/relay
Firmware version	V4.5
Engineering with	
 Programming package 	STEP 7 V17 or higher
Supply voltage	
Rated value (AC)	
• 120 V AC	Yes
• 230 V AC	Yes
permissible range, lower limit (AC)	85 V
permissible range, upper limit (AC)	264 V
Line frequency	
 permissible range, lower limit 	47 Hz
 permissible range, upper limit 	63 Hz
Input current	
Current consumption (rated value)	60 mA at 120 V AC; 30 mA at 240 V AC
Current consumption, max.	180 mA at 120 V AC; 90 mA at 240 V AC
Inrush current, max.	20 A; at 264 V
l²t	0.8 A ² ·s
Output current	
for backplane bus (5 V DC), max.	750 mA; Max. 5 V DC for CM
Encoder supply	
24 V encoder supply	
• 24 V	20.4 to 28.8V
Power loss	
Power loss, typ.	10 W
Memory	
Work memory	
integrated	50 kbyte
expandable	No
Load memory	
integrated	1 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.	4 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 communication modules, 1 signal board
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	6; 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.	6
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 current	
• for signal "1", typ.	4 mA; nominal
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, differential: 3 @ 80 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	4; Relays
Switching capacity of the outputs	
with resistive load, max.	2 A
• on lamp load, max.	30 W with DC, 200 W with AC
Output delay with resistive load	

• "0" to "1", max.	10 ms; max.
• 0 to 1, max. • "1" to "0", max.	10 ms; max.
Relay outputs	TO THO, THAN.
Number of relay outputs	4
Number of relay outputs Number of operating cycles, max.	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 PROFINITION Controller	No
PROFINET IO Controller	100 Mhit/o
Transmission rate, max. Son/less	100 Mbit/s
Services — PG/OP communication	Voc. approprian with TLS V1.3 pro-solveted
FG/OP communication Isochronous mode	Yes; encryption with TLS V1.3 pre-selected No
— IRT	No
— PROFlenergy	No
Prioritized startup	Yes
— Number of IO devices with prioritized startup,	16
max.	
 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.

	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
— 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)	
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	163
Media redundancy	
— MRP	No
— MRPD	No
SIMATIC communication	V
• S7 routing	Yes
Open IE communication	V
• TCP/IP	Yes
— Data length, max.	8 kbyte
 several passive connections per port, supported 	Yes
• 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.	50
— Sampling interval, min.	100 ms
Publishing interval, min.	200 ms
— Rubilshing interval, min. — Number of server methods, max.	200 ms
- Number of Server Methods, max.	20
Number of manitored items, may	1 000
Number of monitored items, max.	1 000
 Number of server interfaces, max. 	2
 Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. 	
— Number of server interfaces, max.— Number of nodes for user-defined server	2

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, memory bits, DBs, distributed I/Os, timers, counters
Forcing	
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	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	
Potential separation digital inputs	500V AC for 1 minute
between the channels, in groups of	1
Potential separation digital outputs	
Potential separation digital outputs	Relays
• between the channels	No
 between the channels, in groups of 	1
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	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 B, for use in residential areas Pegros and class of protection IP degree of protection Standards, approvals, certificates OE mark Ves UL approval UL approval Ves CULUS FM approval FM approva	• Limit class A, for use in industrial areas	Yes; Group 1
the limits for Class B according to EN 55011 Pegree of protection IP20		
Page	- Little diado D, for ado in rodiadridar aroad	
Standards, approvals, certificates Yes	Degree and class of protection	
Ves	IP degree of protection	IP20
UL approval	Standards, approvals, certificates	
Cultus	CE mark	Yes
FM approval	UL approval	Yes
RCM (formerly C-TICK) K Capproval K Capproval Yes Ambient conditions Free fall Fall height, max. Ambient temperature during operation • min. • rorror of the street of the stre	cULus	Yes
Ves Marine approval Yes Marine approval Yes Ambient conditions	FM approval	Yes
Martine approval Pres Ambient conditions	RCM (formerly C-TICK)	Yes
Free fall Fall height, max. Ambient temperature during operation • min. • nax. • horizontal installation, min. • horizontal installation, min. • vertical installation, min. • To 'C • max. Ambient temperature during storage/transportation • min. • min. • nin. • Operation, min. • Storage/transport, min. • Installation altitude, min. • Vibrations • Vibrations • Vibration resistance during operation acc. to IEC 00068-2-6 • Operation, tested according to IEC 60068-2-6 Yes Shock testing • tested according to IEC 60068-2-7 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 SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free configuration / header configuration / header configuration / header configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • User program protection/password protection • User program protection / Yes Yes Selock protection • User program protection / Yes Yes Selock protection	KC approval	Yes
Free fall File height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, max. for C horizontal installation, max. vertical installation, max. for C Ambient temperature during storage/transportation min. min. for C Ambient temperature during storage/transportation min. max. All transport to the control of the	Marine approval	Yes
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 min. e max. horizontal installation, min. horizontal installation, max. vertical installation, max. min. -40 °C max. Operation, min. Operation, max. Storage/transport, max. Storage/transport, max. Storage/transport, max. installation altitude, min. Installation altitude, max. operation, max. Vibration resistance during operation acc. to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6 Operation, tested according to IEC 60068-2-7 Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms sO2 at RH < 60% without condensation SO2 at RH < 60% without condensation SO2 at RH < 60% without condensation responseming language LAD FBD FBD Yes SEC 60, protection User program protection/password protection Flock protection Flock protection Post protection<	Fall height, max.	0.3 m; five times, in product package
	Ambient temperature during operation	
horizontal installation, min. horizontal installation, max. vertical installation, max. so "C Ambient temperature during storage/transportation imin. vertical installation, max. vertical installation, max. Ambient temperature during storage/transportation imin. vertical installation, max. vertical installation, max. vertical installation, max. Anticolory of "C Ambient temperature during storage/transportation imin. vertical installation, max. Anticolory of "C Ambient temperature during storage/transportation vertical installation, max. vertical instal	• min.	-20 °C
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• vertical installation, min. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. 70 °C Air pressure acc. to IEC 60088-2-13 • Operation, min. • Operation, min. • Operation, max. 1 080 hPa • Storage/transport, max. 1 080 hPa • Storage/transport, max. 1 080 hPa • Installation altitude, min. • Installation altitude, min. • Installation altitude, min. • Operation, max. Poperation, max. Vibrations • Vibration resistance during operation acc. to IEC 60068-2-6 • Operation, tested according to IEC 60068-2-6 • Operation, tested according to IEC 60068-2-7 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 SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • User program protection • User program protection • Sop y protection • User program protection • Sop y protection	 horizontal installation, min. 	-20 °C
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Vibrations • Vibration resistance during operation acc. to IEC 60068-2-6 • Operation, tested according to IEC 60068-2-6 Shock testing • tested according to IEC 60068-2-27 • SO2 at RH < 60% without condensation • SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • User program protection/password protection • Block protection Access protection	•	
Vibration resistance during operation acc. to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6 Yes Shock testing Itested according to IEC 60068-2-7 Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms Pollutant concentrations So2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free configuration / header Programming language LAD FBD SCL Know-how protection User program protection/password protection Copy protection Block protection Access protection Yes Access protection	·	95 %; no condensation
Operation, tested according to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6 Shock testing Itested according to IEC 60068-2-27 Operation of the shock 15 g (peak value), duration 11 ms Pollutant concentrations So2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free configuration / header configuration / programming / header Programming language LAD FBD SCL Yes Know-how protection User program protection/password protection Copy protection So2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free value) Yes Yes Yes Yes Yes Yes Yes Y		0 ((2) 11 ((4 ((2) DIN))
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 SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free configuration / header Configuration / programming / header Programming language — LAD — FBD — Yes — SCL — Yes Know-how protection • User program protection/password protection • Copy protection • Block protection PYes Access protection	60068-2-6	
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 SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free configuration / header configuration / programming / header Programming language - LAD Yes - SCL Yes Know-how protection User program protection/password protection Copy protection Block protection Access protection Access protection		Yes
value), duration 11 ms Pollutant concentrations ● SO2 at RH < 60% without condensation SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free configuration / header configuration / programming / header Programming language — LAD — FBD — Yes — SCL Yes Know-how protection ● User program protection/password protection ● Copy protection ● Block protection Yes Access protection	<u> </u>	V IFO 00 P-+0 07 III
SO2 at RH < 60% without condensation SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free configuration / header configuration / programming / header Programming language — LAD — FBD — Yes — SCL Yes Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free SO2: < 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 • Copy protection • Block protection Access protection		
configuration / programming / header Programming language — LAD Yes — FBD Yes — SCL Yes Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection		S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
Programming language — LAD — FBD — FBD — SCL Yes Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection		
— LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection Yes Access protection	configuration / programming / header	
— FBD Yes — SCL Yes Know-how protection ■ User program protection/password protection ■ Copy protection ■ Block protection ■ Block protection Access protection		
— SCL Yes Know-how protection • User program protection/password protection • Copy protection • Block protection • Block protection Access protection Yes Access protection		Yes
Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection Yes Yes Yes		
 User program protection/password protection Copy protection Block protection Yes Access protection Yes Yes		Yes
 Copy protection Block protection Access protection Yes Access protection	·	
Block protection Access protection Yes		
Access protection		
·		Yes
	·	
protection of confidential configuration data Yes	-	
Protection level: Write protection Yes		
Protection level: Read/write protection Yes		Yes
Protection level: Complete protection Yes	Protection level: Complete protection	Yes

programming / cycle time monitoring / header	
 adjustable 	Yes
Dimensions	
Width	90 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	420 g

last modified: 4/12/2021 **C**