SIEMENS

Data sheet

6ES7211-1HE40-0XB0



SIMATIC S7-1200, CPU 1211C, compact CPU, DC/DC/relay, onboard I/O: 6 DI 24 V DC; 4 DO relay 2A; 2 AI 0-10 V DC, Power supply: DC 20.4-28.8V DC, Program/data memory 50 KB

Figure	similar
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General information	
Product type designation	CPU 1211C DC/DC/relay
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)	300 mA; CPU only
Current consumption, max.	900 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V DC
² t	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	L+ minus 4 V DC min.
Power loss	
Power loss, typ.	8 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

for bit operations, typ. 0.08 µs / Instruction for word operations, typ. 1.7 µs: / instruction for word operations, typ. 1.7 µs: / instruction CPU-blocks 2.3 µs: / instruction CPU-blocks 2.3 µs: / instruction CPU-blocks DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65555. There is no restriction, the entire working memory carbon be used CB - Number, max. CB - Number, max. Plant areas and their relearchibity Field - Size, max. - Size, max. 14 kbyte. Size of bit memory address area Local data - Size, area. Product state + kbyte. Size of bit memory address area Local data - Size, area. Product state + kbyte. • Oper priority class, max. 1 kbyte • Oper priority class, max. 1 kbyte • Oper priority class, adjustable 1 kbyte • Operations per day, max. 3 communication modules, 1 signal board Time of day - Size, adjustable • Dark adjustable 1 kbyte • Dark adjustop reday, max.<	CPU processing times	
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	• unshielded, max.	300 m; for technological functions: No
Number of digital outputs	Digital outputs	
Number of digital outputs 4, Relays	Number of digital outputs	4; Relays
Switching capacity of the outputs	Switching capacity of the outputs	
• with resistive load, max. 2 A	with resistive load, max.	2 A
• on lamp load, max. 30 W with DC, 200 W with AC	• on lamp load, max.	30 W with DC, 200 W with AC
Output delay with resistive load	Output delay with resistive load	

• "0" to "1", max.	10 ms; max.
• "1" to "0", max.	10 ms; max.
Relay outputs	
Number of relay outputs	4
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	No
PROFINET IO Controller	400 MbW/a
Transmission rate, max.	100 Mbit/s
Services	Voc: open ution with TLS V/4.2 pro-selected
- PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode — IRT	No
— IRT — 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

amultaneously estivated (depativated may	
simultaneously activated/deactivated, max.	The minimum value of the update time also depends on the
— Updating time	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
— 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	
Media redundancy	
— MRP	No
— MRPD	No
SIMATIC communication	
S7 routing	Yes
Open IE communication	
• 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
— Number of server methods, max.	20
- Number of monitored items, max.	1 000
- Number of server interfaces, max.	2
 — Number of nodes for user-defined server interfaces, max. 	2 000
· · · · · · · · · · · · · · · · · · ·	
Further protocols	
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, memory bits, DBs, distributed I/Os, timers, counters
Forcing	μ····································
Forcing	Yes
Diagnostic buffer	
• present	Yes
• present Traces	
	2
Number of configurable Traces	
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	
Counter	
Number of counters	6
Counting frequency, max.	100 kHz
Frequency measurement	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction interface	o 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	Yes
electricity acc. to IEC 61000-4-2	
— Test voltage at air discharge	8 kV
— Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	N
 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 disturbanc	e induced by high-frequency fields

Interference immunity against high-frequency	Yes
radiation acc. to IEC 61000-4-6	
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	
CE mark	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
Ambient conditions	
Free fall	
	0.3 m; five times, in product package
Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	20 °C
• min.	-20 °C
• max.	00 °C
horizontal installation, min.	-20 °C
horizontal installation, max.	00 °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	
 Installation altitude, min. 	-1 000 m
Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	the second se
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	
 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
s protostion of connactual conniguration data	

 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	90 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	380 g

last modified:

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