SIEMENS

Data sheet

6ES7214-1HG40-0XB0



Figure similar

SIMATIC S7-1200, CPU 1214C, 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 20.4-28.8 V DC, program/data memory 100 KB

General information	
Product type designation	CPU 1214C 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)	500 mA; CPU only
Current consumption, max.	1 500 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V
l²t	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	
• 24 V	L+ minus 4 V DC min.
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
integrated	100 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	TO THE PROPERTY OF THE PROPERT
Process image	
Inputs, adjustable	1 kbyte
Outputs, adjustable	1 kbyte
	1 KDyte
Hardware configuration	3 comm modulos 1 signal hoard 9 signal modulos
Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
Time of day	
Clock	V
Hardware clock (real-time) Parking fine	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	04.1/
Rated value (DC) for circul "O"	24 V
• for signal "0"	5 V DC at 1 mA
for signal "1" Input delay (for rated value of input voltage)	15 V DC at 2.5 mA
for standard inputs	
— parameterizable	
— parametenzable	0.2 mg 0.4 mg 0.8 mg 1.6 mg 3.2 mg 6.4 mg and 12.8 mg galactable
•	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, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four 0.2 ms
	in groups of four
— at "0" to "1", min.	in groups of four 0.2 ms
— at "0" to "1", min. — at "0" to "1", max.	in groups of four 0.2 ms
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs	in groups of four 0.2 ms 12.8 ms
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable	in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable	in groups of four 0.2 ms 12.8 ms Yes
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Cable length	in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Cable length • shielded, max.	in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz 500 m; 50 m for technological functions
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Cable length • shielded, max. • unshielded, max.	in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Cable length • shielded, max. • unshielded, max. Digital outputs	in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz 500 m; 50 m for technological functions 300 m; for technological functions: No
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Cable length • shielded, max. • unshielded, max. Digital outputs Number of digital outputs	in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz 500 m; 50 m for technological functions
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Cable length • shielded, max. • unshielded, max. Digital outputs Number of digital outputs Switching capacity of the outputs	in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz 500 m; 50 m for technological functions 300 m; for technological functions: No
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Cable length • shielded, max. • unshielded, max. Digital outputs Number of digital outputs Switching capacity of the outputs • with resistive load, max.	in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz 500 m; 50 m for technological functions 300 m; for technological functions: No 10; Relays
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Cable length • shielded, max. • unshielded, max. Digital outputs Number of digital outputs Switching capacity of the outputs • with resistive load, max. • on lamp load, max.	in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz 500 m; 50 m for technological functions 300 m; for technological functions: No
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Cable length • shielded, max. • unshielded, max. Digital outputs Number of digital outputs Switching capacity of the outputs • with resistive load, max. • on lamp load, max. Output delay with resistive load	in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz 500 m; 50 m for technological functions 300 m; for technological functions: No 10; Relays 2 A 30 W with DC, 200 W with AC
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Cable length • shielded, max. • unshielded, max. Digital outputs Number of digital outputs Switching capacity of the outputs • with resistive load, max. • on lamp load, max. Output delay with resistive load • "0" to "1", max.	in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz 500 m; 50 m for technological functions 300 m; for technological functions: No 10; Relays 2 A 30 W with DC, 200 W with AC
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Cable length • shielded, max. • unshielded, max. Digital outputs Number of digital outputs Switching capacity of the outputs • with resistive load, max. • on lamp load, max. Output delay with resistive load • "0" to "1", max. • "1" to "0", max.	in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz 500 m; 50 m for technological functions 300 m; for technological functions: No 10; Relays 2 A 30 W with DC, 200 W with AC
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Cable length • shielded, max. • unshielded, max. Digital outputs Number of digital outputs Switching capacity of the outputs • with resistive load, max. • on lamp load, max. Output delay with resistive load • "0" to "1", max. • "1" to "0", max. Relay outputs	in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz 500 m; 50 m for technological functions 300 m; for technological functions: No 10; Relays 2 A 30 W with DC, 200 W with AC 10 ms; max. 10 ms; max.
— at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions — parameterizable Cable length • shielded, max. • unshielded, max. Digital outputs Number of digital outputs Switching capacity of the outputs • with resistive load, max. • on lamp load, max. Output delay with resistive load • "0" to "1", max. • "1" to "0", max.	in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz 500 m; 50 m for technological functions 300 m; for technological functions: No 10; Relays 2 A 30 W with DC, 200 W with AC

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	400
• 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 MI W
Transmission rate, max. Services	100 Mbit/s
Services	Voc. openintian with TLC \// 2 are calcuted
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
Isochronous mode IRT	No No
— IRT — PROFlenergy	No No
Profilenergy Prioritized startup	Yes
·	16
 Number of IO devices with prioritized startup, max. 	10
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.	The minimum ratio of the state
— 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

- PROFerency - Shared device - Shared device - Number of IO Controllers with shared device, - Shared device - Number of IO Controllers with shared device, - Supports protocol for PROFINET IO - PROFISIAN - Shared Shared - Number of Research Shared - Number of sever infelaces - Shared Shared - Number of sever-defined server - Shared shared - Number of sever-defined server - Number of sever-defin	DDOFlonoray	Voo
	— PROFlenergy	Yes
max. Protocols Supports protocol for PROFINET IO PROFIEUS OPE UA PROFIEUS OPE UA PROFIEUS OPE UA Profieus SUPPORT SUPP OPE UA Profieus OPE UA Profieus OPE UA Profieus OPE UA Profieus OPE UA Server O		
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PROFisals PROFisals PROFisals PROFisals PROFisals PROFisals PROFisals PROFisals PROFisals Protections (Ethernet) Protections (Ethernet) PROFID	Supports protocol for PROFINET IO	Yes
OPC UA Server **S.Interface Protocols (Ethernet) • CPCPIP • DHCP • DHCP • No • SNMP • LIDP Redundancy mode Media redundancy — MRP — MRP — MRP — MRP — Data length, max. • SPOP (PR-CTUG) • UDP • UDP • USB — Data length, max. • USB • Data length, max. • USB • DECIDE • USB • USB • DECIDE • USB • Work • No SMATIC communication • ST rouling Ves OPC UA • Runtime license required • OPC UA Server — Application authentication — Number of sessions, max. — Number of server methods, max. — Number of server methods, max. — Number of server interfaces, max. — N		
AS-Interface Protocols (Ethernet) **TOPIP** **OPICP** **OPICP** **ONIMP** **OCCP** **ONIMP** **OCCP** **ONIMP** **OCCP** **OCCP** **ONIMP** **OCCP** **ONIMP** **OCCP** **ONIMP** **OCCP** **ONIMP** **OCCP** **ONIMP**	PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
Protocols (Ethernet)	OPC UA	Yes; OPC UA Server
OFFICP OFFI	AS-Interface	Yes; CM 1243-2 required
OHCP SNMP SNMP SNMP Ves	Protocols (Ethernet)	
SMMP ODP ILIDP Yes Peduadnary mode Media redundancy — MRPP MRPD No SIMATIC communication STrouting Open IE communication • TCP/RP — Data length, max. • ISD on-TCP (RFC1006) — Data length, max. • UDP — Data length, max. • UUP — Data length, max. • USP — Data length, max. • Samported • User-defined websites OPC UA • Runtime license required • OPC UA Server — Application authentication — Number of subscriptions per session, max. — Number of subscriptions per session, max. — Number of sessions, max. — Number of sever interfaces, max. — Number of server interfaces, max. — Number of serv		
ODP		
Redundancy mode Media redundancy - MRPP		
Redundancy mode Media redundancy		
Media redundancy		165
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- MRPD Similar Communication Strouting Pers Yes Open E communication TOP/IP - Data length, max. SiSO-on-TCP (RFC1006) - Data length, max. UDP - Data length, max. Sisyo-on-TCP (RFC1006) - UDP - Data length, max. Sisyo-on-TCP (RFC1006) - USE on the sisyo-on-TCP (RFC1006) - USE on t	·	No
SIMATIC communication ST routing Pen IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Yes Data length, max. UDP Yes Data length, max. UDP Yes Data length, max. Ves Ves User-defined websites OPC UA Runtime license required Pers OPC UA Server Application authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 User authentication Number of sessions, max. Number of subscriptions per session, max. Number of subscriptions per session, max. Number of server methods, max. Number of server methods, max. Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Number of ondes for user-defined server interfaces, max. Number of ondes for user-defined server interfaces, max. Number of server interfaces max. Number of server interfaces max. Number of server interfaces max. Number of server interfaces, max. Number of server interfaces, max. Number of server interfaces, max. Number of server interfaces max. Puther protocols MOBUS Yes Communication functions / header ST communication supported Yes as client Yes as client Yes See online help (S7 communication, user data size) 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; Upon Open Clonnections: 38 reserved / 64 max Test commissioning functions		
Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Data length, max. • UDP — Data length, max. • UDP — Data length, max. • UDP — Data length, max. • UDP — Data length, max. • UDP — Data length, max. • UDP — Data length, max. • UDP — Data length, max. • Supported • User-defined websites OPC UA • Runtime license required • OPC UA Server — Application authentication — Author of Server authentication — Number of sessions, max. — Number of subscriptions per session, max. — Number of sessions, max. — Publishing interval, min. — Publishing interval, min. — Publishing interval, min. — Number of server methods, max. — Number of server methods, max. — Number of server interfaces, max. — Number of server interfaces, max. PNumber of server interfaces, max. Publishing interval, min. — Search of Server interfaces, max. ONUMBER of Server interfaces, max. PNumber of codes for user-defined server interfaces, max. PNumber of server interfaces, max. Publisher of Server interfaces, max. Publisher of Server interfaces, max. Pommunication functions / header 7 communication functions / header 7 communication functions / header 8 ce online help (S7 communication, user data size) PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 10 max; Total Connections: 34 reserved / 64 max; S7 Server dr / 10 max; Total Connections: 34 reserved / 64 max; S7 Server dr / 10 max; Total Connections: 34 reserved / 64 max; S7 Server dr / 10 max; Total Connections: 34 reserved / 64 max; S7 Server dr / 10 max; Total Connections: 34 reserved / 64 max; S7 Server dr / 10 max; Total Connections: 34 reserved / 64 max; S7 Server dr / 10 max; Total Connections: 34 reserved / 64 max; S7 Server dr / 10 max; Total Connections: 34 reserved / 64 max; S7 Server dr / 10 max; Total Connections: 34 res		
Text communication Text communication Text communication Text communication Function For Communication Supported A Text communication Supported A Subyte Yes Subyte Yes Subyte Yes Subyte Yes 1 472 byte Yes 1 472 byte Yes Yes Po Data length, max. Yes Yes Yes Yes Yes Yes Po Data length, max. Yes Yes Yes Yes Yes Yes Yes Ye	S7 routing	Yes
- Data length, max. • ISO-on-TCP (RFC1006) - Data length, max. • UDP - Data length, max. • UPP - Data length, max. • Upp - Data length, max. • Supported • User-defined websites OPC UA • Runtime license required • OPC UA Server - Application authentication - Application authentication - Application authentication - Number of sessions, max Number of subscriptions per session, max Number of subscriptions per session, max Sampling interval, min Publishing interval, min Publishing interval, min Number of server methods, max Number of server interfaces, max Number of nonitored items, recommended max Number of server interfaces, max Number of hordes for user-defined server interfaces, max. Further protocols • MODBUS communication functions / header ST communication • supported • as client • User data per job, max. PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; ST Connections: 8 reserved / 14 max; Uppen User Connections: 8 reserved / 14 max; Uppen User Connections: 34 reserved / 64 max Test commissioning functions	Open IE communication	
ISO-on-TCP (RFC1006) Data length, max. Skbyte UDP Data length, max. Skbyte Data length, max. I 1472 byte Web server Supported User-defined websites Ves PCUA Runtime license required OPC UA Server Application authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Rsa15, Basic256Rsa256 User authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Ba	• TCP/IP	Yes
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UDP Data length, max. 1472 byte Web server supported User-defined websites Ves User-defined websites OPC UA Runtime license required OPC UA Server — Application authentication — Application authentication — Number of sessions, max. — Number of sessions, max. — Number of sessions per session, max. — Publishing interval, min. — Number of monitored items, recommended max. — Number of souser-defined server interfaces, max. — Number of nodes for user-defined server interfaces, max. — Number of nodes for user-defined server interfaces, max. — NoDBUS Yes Further protocols • MODBUS Ves as a client • Overall PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 8 max Server de/ 4 max; HMI Connections: 34 reserved / 64 max Reserved / 16 max; Total Connections: 34 reserved / 64 max Reserved / 10 max; Total Connections: 34 reserved / 64 max Reserved / 10 max; Total Connections: 34 reserved / 64 max Reserved / 10 max; Total Connections: 34 reserved / 64 max Reserved / 10 max; Total Connections: 34 reserved / 64 max Reserved / 10 max; Total Connections: 34 reserved / 64 max Reserved / 10 max; Total Connections: 34 reserved / 64 max Test commissioning functions		
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Supported User-defined websites OPC UA Runtime license required OPC UA Server - Application authentication User authentication Number of sessions, max. Number of subscriptions per session, max. Number of foundations Number of sever methods, max. Number of nonlitored items, recommended max. Number of nonlitored items, recommended max. Number of nodes for user-defined server interfaces, max. Polymore of server interfaces, max. Number of nonestions / Yes Communication functions / header Sz communication PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; Sz Connections: 8 reserved / 14 max; Web Connections: 34 reserved / 64 max Test commissioning functions		1 472 byte
User-defined websites OPC UA Runtime license required OPC UA Server - Application authentication - Application authentication - Number of sessions, max. - Number of subscriptions per session, max. - Sampling interval, min. - Publishing interval, min. - Number of server methods, max. - Number of server methods, max. - Number of server interfaces, max. - Number of server interfaces, max. - Number of sever interfaces, max. - Number of sever interfaces, max. - Number of nodes for user-defined server interfaces, max. - Supported • as server • as client • User data per job, max. Number of connections • overall PG Connections: 8 reserved / 14 max; Web Connections: 12 reserved / 64 max; Open User Connections: 8 reserved / 10 max; Total Connections: 34 reserved / 64 max; Open User Connections: 8 reserved / 10 max; Total Connections: 34 reserved / 64 max; Open User Connections: 8 reserved / 10 max; Total Connections: 34 reserved / 64 max; Open User Connections: 8 reserved / 10 max; Total Connections: 34 reserved / 64 max; Total Conne		Von
PC UA Runtime license required PC UA Server Application authentication Application authentication Number of sessions, max. Number of subscriptions per session, max. Number of server methods, max. Number of server methods, max. Number of server interfaces, max. Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Number of nodes for user-defined server interfaces, max. Number of nodes for user-defined server interfaces, max. Possible security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Rsa15	• •	
 Runtime license required OPC UA Server — Application authentication — User authentication — Number of sessions, max. — Number of subscriptions per session, max. — Sampling interval, min. — Publishing interval, min. — Number of server methods, max. — Number of server interfaces, max. — Number of ondes for user-defined server interfaces, max. — Number of ondes for user-defined server interfaces, max. — Romunication functions / header S7 communication ● supported ● as server ● as client ● User data per job, max. Number of connections ● overall PG Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 10 max; Total Connections: 34 reserved / 64 max Test commissioning functions Test commissioning functions 		165
Yes; data access (read, write, subscribe), method call, runtime license required — Application authentication — User authentication — Number of sessions, max. — Number of subscriptions per session, max. — Sampling interval, min. — Publishing interval, min. — Number of server methods, max. — Number of server interfaces, max. — Number of server interfaces, max. — Number of nodes for user-defined server interfaces, max. Further protocols • MODBUS Yes communication functions / header S7 communication • supported • 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; S7 Connections: 2 reserved / 10 max; Total Connections: 34 reserved / 64 max Test commissioning functions Test commissioning functions Yes Test commissioning functions Yes Yes Yes Overall Test commissioning functions Yes Yes Yes Overall Yes Overall PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 64 max Test commissioning functions Test commissioning functions		Yes; "Basic" license required
- Application authentication - User authentication - Number of sessions, max Number of subscriptions per session, max Sampling interval, min Publishing interval, min Number of server methods, max Number of server interfaces, max Number of nodes for user-defined server interfaces, max Supported - MODBUS - Yes communication functions / header S7 communication • supported - as server - as client - User data per job, max Overall - PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64 max Test commissioning functions Test commissioning functions - Outper of sessions, max Number of sessions, max 10 - 100 ms - 200 ms - 1000 ms - 2000 ms - 1000 ms - 2000 ms		Yes; data access (read, write, subscribe), method call, runtime license
- Number of sessions, max Number of subscriptions per session, max Sampling interval, min Publishing interval, min Number of server methods, max Number of monitored items, recommended max Number of server interfaces, max Number of of server interfaces, max Number of ondes for user-defined server interfaces, max. Further protocols	 Application authentication 	Available security policies: None, Basic128Rsa15, Basic256Rsa15,
- Number of subscriptions per session, max Sampling interval, min Publishing interval, min Number of server methods, max Number of monitored items, recommended max Number of server interfaces, max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max. Further protocols • MODBUS **Yes** **Communication functions / header** S7 communication • supported • 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; S7 Connections: 8 reserved / 14 max; Open User Connections: 9 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Open User Connections: 9 reserved / 14 max; Open User Connections: 12 reserved / 14 max; Open User Connections: 13 reserved / 14 max; Open User Connections: 13 reserved	 User authentication 	"anonymous" or by user name & password
- Sampling interval, min Publishing interval, min Number of server methods, max Number of monitored items, recommended max Number of server interfaces, max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max. Further protocols • MODBUS Yes communication functions / header S7 communication • supported • 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; S7 Connections: 8 reserved / 14 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64 max Test commissioning functions	Number of sessions, max.	10
— Publishing interval, min. — Number of server methods, max. — Number of monitored items, recommended max. — Number of server interfaces, max. — Number of nodes for user-defined server interfaces, max. — Number of nodes for user-defined server interfaces, max. 2 — Number of nodes for user-defined server interfaces, max. Further protocols ■ MODBUS ▼es Communication functions / header S7 communication ■ supported ■ 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; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web 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	 Number of subscriptions per session, max. 	5
— Number of server methods, max. — Number of monitored items, recommended max. — Number of server interfaces, max. — Number of nodes for user-defined server interfaces, max. — Number of nodes for user-defined server interfaces, max. 2 000 Event interfaces, max. Further protocols ■ MODBUS ■ MODBUS Yes Communication functions / header S7 communication ■ supported ■ 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; S7 Connections: 8 reserved / 14 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64 max Test commissioning functions		
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max. — Number of server interfaces, max. — Number of nodes for user-defined server interfaces, max. 2 000 Further protocols • MODBUS • MODBUS Yes communication functions / header S7 communication • supported • 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; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 64 max Test commissioning functions		
— Number of server interfaces, max. — Number of nodes for user-defined server interfaces, max. Further protocols • MODBUS Yes communication functions / header S7 communication • supported • 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; 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		1 000
— Number of nodes for user-defined server interfaces, max. Further protocols • MODBUS Yes communication functions / header S7 communication • supported • 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; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 64 max Test commissioning functions		2
Further protocols MODBUS Yes communication functions / header S7 communication supported 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; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 64 max Test commissioning functions	 Number of nodes for user-defined server 	
MODBUS communication functions / header S7 communication supported supported 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; 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		
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as server as client Ves 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	S7 communication	
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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	• as server	
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	overall	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
Status/control	Test commissioning functions	
	Status/control	

Otation/acotanless sinkle	V
Status/control variableVariables	Yes
• variables Forcing	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
• Forcing	Yes
Diagnostic buffer	103
• 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 	2
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	
 Interference immunity on supply lines acc. to IEC 61000-4-4 	Yes
Interference immunity on signal cables acc. to IEC	Yes
61000-4-4	
Interference immunity against voltage surge	Voc
 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	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	
 Fall height, max. 	0.3 m; five times, in product package

Ambient temperature during operation	
	-20 °C
• min.	
• 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	
Installation altitude, min.	-1 000 m
Installation altitude, min. Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	The striction of installation autuues > 2 000 III, see IIIdiludi
Operation, max.	95 %; no condensation
Vibrations	95 %, No condensation
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	160
protection of confidential configuration data	Yes
Protection level: Write protection	Yes
Protection level: Read/write protection Protection level: Complete protection	Yes
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	V
adjustable	Yes
Dimensions	
Width	110 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	435 g
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