SIEMENS

Data sheet

6ES7215-1BG40-0XB0



SIMATIC S7-1200, CPU 1215C, compact CPU, AC/DC/relay, 2 PROFINET ports, onboard I/O: 14 DI 24 V DC; 10 DO relay 2 A, 2 AI 0-10 V DC, 2 AO 0-20 mA DC, Power supply: AC 85-264 V AC at 47-63 Hz, Program/data memory 125 KB

General information	
Product type designation	CPU 1215C 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)	265 V
Line frequency	
 permissible range, lower limit 	47 Hz
 permissible range, upper limit 	63 Hz
Input current	
Current consumption (rated value)	100 mA at 120 V AC; 50 mA at 240 V AC
Current consumption, max.	300 mA at 120 V AC; 150 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.	1 600 mA; Max. 5 V DC for SM and CM
Encoder supply	
24 V encoder supply	
• 24 V	20.4 to 28.8V
Power loss	
Power loss, typ.	14 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	2.0 40,7
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	200 0/Hohar at 20 0
	1/1: Integrated
Number of digital inputs • of which inputs usable for technological functions	14; Integrated 6; HSC (High Speed Counting)
Source/sink input	Yes
Number of simultaneously controllable inputs	100
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	Yes; 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
— parameterizable for technological functions	1 63
— parameterizable	Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 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; 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.
• "1" to "0", max.	10 ms; max.
Relay outputs	40
Number of relay outputs	10
Number of operating cycles, max. Cable langth	mechanically 10 million, at rated load voltage 100 000
Cable length	500 m
• shielded, max.	500 m

• unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
Input ranges	2
• 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
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
Encoder	
Connectable encoders	
2-wire sensor	Yes
	100
1. Interface	PROFINET
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes Yes
Autoropoing	Yes
Autocrossing Interface types	res
RJ 45 (Ethernet)	Yes
Number of ports	2
integrated switch	Yes
Protocols	165
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	Yes
PROFINET IO Controller	
Transmission rate, max.	100 Mbit/s
Services	
— 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, 	16
max.	
 Number of connectable IO Devices, max. 	16
Number of connectable IO Devices for RT,	16
max.	16
— of which in line, max.— Activation/deactivation of IO Devices	16 Yes
— Number of IO Devices that can be simultaneously activated/deactivated, max.	8
— 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

Shared device Number of IO Controllers with shared device, max. Protocols Supports protocol for PROFINET IO	DDOCIonarry	Ves
Protocols Supports protocol for PROFINET IO PROFILISE Was PROFILISE Ves. CM 1243-5 (master) or CM 1242-5 (slave) required Protocols (eithernet) **TOPIP** **Yes** **SUBJECTOR OF A TOPIP** **TOPIP** **TOPIP** **Yes** **SUBJECTOR OF A TOPIP** **TOPIP** **TOPIP** **Yes** **SUBJECTOR OF A TOPIP** **TOPIP** **Yes** **SubJector Of Indian Authoritation **TOPIP** **TOPIP** **TOPIP** **Yes** **SubJector Of Indian Authorita	— PROFlenergy	Yes
max. Protocols Supports protocol for PROFINET IO PROFIBUS OPE UA PROFIBUS OPE UA Protocols (Ethernet) OPE UA OPE UA Savery OPE UA OPE		
Protocols		2
Supports protocol for PROFINET IO PROFIBUS PROFI		
PROFISATE PROFIS		Yes
PROFIBUS OPC UA AS-Interface Yes; CM 1243-5 (master) or CM 1242-5 (slave) required OPC UA AS-Interface Yes; CM 1243-2 required Protocols (Ethernet) • TCPIP • OHCP • OND • SNMP • DCP • SNMP • DCP • LLDP Redundancy mode Media redundancy — MRP — Data length, max • ISC-On-TCP (RFC1006) — Data length, max. • ISC-On-TCP (RFC1006) — Data length, max. • UDP • Data length, max. • UPP — Data length, max. • UPP • Data length, max. • UPP • Data length, max. • UPP • Supported • User-defined websites Pes OPC UA • Runtime license required • OPC UA Server — Application authentication — Number of sessions, max. — Number of subscriptions per session, max. — Sampling interval, min. — Publishing interval, min. — Publishing interval, min. — Number of server methods, max. — Number of server methods, max. — Number of oldes for user-defined server interfaces, max. — Number of server interfaces, max. See online help (S7 communication, user data size) Number of connections • overall PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 6 max; OFC Connections: 3 reserved / 14 max; Open User Connections on tax Test commissioning functions Status/control variable Yes Status/control variable		
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AS-Interface Protocols (Ethernet) TOPIP OPICP OPICP ON SNMP OSNMP OCP SNMP OCP SET OF STATE		
Protocols (Ethernet) • TCP/IP • DHCP • SNMP • DHCP • SNMP • DCP • LLDP • LLDP • LLDP • No • SNMP • DCP • Yes • LLDP • Yes • LLDP • Yes • LLDP • Yes • NamP MRP Yes, as MRP redundancy manager and/or MRP client 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. • USP • Supported • User-defined websites • OPC UA • Runtime license required • OPC UA Server — Application authentication — Number of sessions, max. • Number of subscriptions per session, max. • Number of subscriptions per session, max. • Number of subscriptions per session, max. • Number of server interfaces, max. — Number of		
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Redurdancy mode Media redundancy — MRP MRP MRP MRP MRP MRP Media redundancy — Data length, max. ISO-on-TCP (RFC1006) — Data length, max. ISO on-TCP (RFC1006) — Data length, max. IUP — Data length, max. IUP — Data length, max. I 472 byte Web server Supported Ves User-defined websites PCP UA Runtime license required OPC UA Server — Application authentication — Number of sessions, max. — Number of subscriptions per session, max. — Number of subscriptions per session, max. — Number of server interfaces, 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. — 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. — 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. — Number of nodes for user-defined server interfaces, max. — Number of nodes for user-defined 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. MODBUS PG Connections: PG Connections: 4 max; HMI Connections: 12 reserved / 8 max; 87 Connections: 7 reserved / 4 max; Dept User Connection 8 reserved / 14 max; Web Connections: 12 reserved / 8 max; 87 Connections: 7 reserved / 16 max; 70 alon max; 70 volume of connections 12 reserved / 6 max Test commissioning functions Status/control variable Yes	• SNMP	Yes
Redundancy mode Media redundancy — MRP Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Data length, max. • USP — Ves • User-defined websites OPC UA • Runtime license required • OPC UA Server — Application authentication — Application authentication — Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 — User authentication — Number of sessions, max. — Number of sessions, max. — Number of sessions, max. — Number of server interfaces, max. — number of monitored items, recommended max. — Number of server methods, max. — number of monitored items, recommended max. — Number of server interfaces, max. — Ves * MODBUS * Yes * Gommunication functions / header * 7 communication functions / header * 7 communication functions / header * 8 ce online help (\$7 communication, user data size) * Wes * See online help (\$7 communication, user data size) * Overall * 9 G Connections: 8 reserved / 4 max; HMI Connections: 12 reserved / 8 max; 97 Connections: 8 reserved / 14 max; UPC connections are servered / 10 max; 70 connections or reserved / 10 max; Total Connections: 34 reserved / 6 max * 1 commissioning functions * Status/control variable * Yes	• DCP	Yes
Media redundancy — MRP Open IE communication • TCP/IP Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • I 472 byte Pes OPC UA • Runtime license required • OPC UA Server — Application authentication — Application authentication — Number of sever interfaces, max. — Number of subscriptions per session, max. — Number of nonitored items, recommended max. — Number of nonitored items, recommended 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 • MODBUS • Yes communication functions / header ST communication functions / header ST communication functions / header ST communication functions / header For Connections or reserved / 4 max; HMI Connections: 12 reserved / 8 max; 87 Connections: 8 reserved / 4 max; Copen luser Connection 8 reserved / 14 max; Open luser Connections 8 reserved / 14 max; Open luser Connections 8 reserved / 14 max; Total Connections: 34 reserved / 6 max Test commissioning functions Status/control variable	• LLDP	Yes
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Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Data length, max. • 1 472 byte Web server • Supported • 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. — Number of subscriptions per session, max. — Number of subscriptions per session, max. — Number of server methods, max. — Number of server methods, max. — number of monitored items, recommended max. — Number of server interfaces, max. — Number of nerver interfaces, max. — Number of nerver interfaces, max. — Number of nores for user-defined server interfaces, max. Further protocols • MODBUS Test communication functions / header **Yes ** as client • User data per job, max. PG Connections: PG Connections: PG Connections: 4 reserved / 4 max; PMI Connections: 12 reserved / 18 max; S7 Commeutions: 8 reserved / 14 max; Open User Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 6 max **Test Commissioning functions **Status/control variable** Yes **Supported **Status/control variable** **Status/control variable** **Status/control variable** **Yes **Supported **Status/control variable** **Yes **Supported **Status/control variable** **Yes **Status/control variable** **Yes **Supported **Yes **Supported **Status/control variable** **Yes **Supported **Y	Media redundancy	
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- Data length, max. • ISO-on-TCP (RFC1006) - Data length, max. • UDP - Data length, max. * UDP - Data length, max. * Ves - Data length, max. * Supported - 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 Number of subscriptions per session, max Sampling interval, min Publishing interval, min Publishing interval, min Number of server interfaces, max number of nonitored items, recommended max Number of server interfaces, max Number of server interfaces, max Number of server interfaces, max Number of obes for user-defined server interfaces, max Number of server interfaces, max Number of condes for user-defined server interfaces, max Number of condes for user-defined server interfaces, max Sampling interval, min Server - sa client - supported - as server - as a client - Ves - as a client - Ves - as client - Ves - See online help (S7 communication, user data size) Number of connections - Overall - Ove	•	
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UDP	` '	
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User-defined websites OPC UA Runtime license required OPC UA Server Application authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 User authentication Number of sessions, max. Number of sessions, max. Number of server methods, max. Number of server interfaces, max. Number of server interfaces, max. Number of of server interfaces, max. Number of nodes for user-defined server interfaces, max. Further protocols MODBUS Secommunication functions / header 7 communication functions / header 7 communication functions / header 9 cas client User data per job, max. See 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 / 6 max Test commissioning functions Status/control Status/control variable Yes		
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 Runtime license required OPC UA Server — Application authentication — 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 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. Further protocols • MODBUS ▼es ✓ Toommunication functions / header S7 communication functions / header S7 communication functions / header S7 communication functions / header For data per job, max. Number of connections • overall PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 8 reserved / 14 max; Open User Connection 8 reserved / 14 max; Open User Connection 8 reserved / 14 max; Open User Connection 9 reserved / 14 max; Total Connections: 34 reserved / 6 max Test commissioning functions Status/control • Status/control variable 		Yes
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- 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 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 Status/control • Overall Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 10 10 10 10 10 10 10 10 10 1	OPC UA Server	
- User authentication - Number of sessions, max Number of sessions, max Sampling 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 Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max. Further protocols • MODBUS communication functions / header \$7 communication • supported • as server • as client • User data per job, max. Number of connections • overall PG Connections: 8 reserved / 14 max; Open User Connection • servered / 14 max; Open User Connections: 2 reserved / 14 max; Open User Connections: 3 reserved / 14 max; Open User Connections: 30 reserved / 10 max; Total Connections: 34 reserved / 6 max Test commissioning functions Status/control • Status/control • Status/control variable Yes	 Application authentication 	Available security policies: None, Basic128Rsa15, Basic256Rsa15,
- 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 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 • MODBUS **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; Web Connections: 2 reserved / 30 max; OPC U/C Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 6 max **Test commissioning functions** Status/control • Status/control variable Yes	 User authentication 	
- 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. Further protocols		
		5
- 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	·	100 ms
- 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 **Turther protocols** • MODBUS **Turther protocols** • MODBUS **Turther protocols** • MODBUS **Turther protocols** • MODBUS **Yes **Communication functions / header **S7 communication • supported • sa 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 / 6 max **Test commissioning functions** **Status/control** • Status/control variable **Yes** **Test commissioning functions** **Test commissioning functions** **Test commissioning functions** **Status/control variable** **Yes** **Test commissioning functions** **Status/control variable** **Yes** **Test commissioning functions** **Status/control variable** **Yes** **Test commissioning functions** **Status/control variable** **Test commissioning functions**		200 ms
- 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 **Test communication** - Number of connections - Number of connections - Overall -	<u> </u>	20
- Number of server interfaces, max. - Number of nodes for user-defined server interfaces, max. Further protocols • MODBUS • MODBUS Sommunication 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 Connection 8 reserved / 14 max; Web Connections: 2 reserved / 6 max Test commissioning functions Status/control • Status/control variable Yes	 number of monitored items, recommended 	1 000
— Number of nodes for user-defined server interfaces, max. Further protocols		
interfaces, max. Further protocols MODBUS Yes communication functions / header S7 communication supported sa server sa sclient User data per job, max. PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Open User Connections overall PG Connections: 4 reserved / 14 max; Web Connections: 2 reserved / 6 max Test commissioning functions Status/control Status/control Status/control Status/control Yes Yes		
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 / 6 max Test commissioning functions Status/control • Status/control variable Yes		2 000
MODBUS Communication functions / header S7 communication Supported Sa server Sa server Sa selient Sa selient Sa server Sa selient Sa see online help (S7 communication, user data size) Number of connections 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 Connection 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 6 max Test commissioning functions Status/control Status/control variable 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 / 6 max Test commissioning functions Status/control • Status/control variable Yes	•	Ves
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 Connection 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 6 max Test commissioning functions Status/control • Status/control variable Yes		res
 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 Connection 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 6 max Test commissioning functions Status/control Status/control variable 		
 as server as client 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 / 6 max Test commissioning functions Status/control Status/control variable 		
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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 Connection 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 6 max Test commissioning functions Status/control Status/control variable Yes		
Number of connections • overall PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Open User Connection 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 6 max Test commissioning functions Status/control • Status/control variable Yes		
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18 max; S7 Connections: 8 reserved / 14 max; Open User Connection 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 6 max Test commissioning functions Status/control • Status/control variable Yes		DO O
Status/control • Status/control variable Yes	• 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 • Status/control variable Yes	Test commissioning functions	
Status/control variable Yes		
		Yes
 Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters 		Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing		pate. outpute, mornery one, bbo, distributed 1700, tillions, 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	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 Number of alarm inputs	Yes 4
·	4
Potential separation	
Potential separation digital inputs	500V AC for 1 minute
Potential separation digital inputsbetween the channels, in groups of	1
Potential separation digital outputs	
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	163
Interference immunity against voltage surge	
 Interference immunity on supply lines acc. to IEC 	Yes
61000-4-5	
Interference immunity against conducted variable disturbance	
 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	
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	00.00
• 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
- havinantal installation	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, max. 	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	
Operation, max.	95 %; no condensation
Vibrations	
 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	
	11 2
configuration / programming / header	
configuration / programming / header Programming language	
configuration / programming / header Programming language — LAD	Yes
configuration / programming / header Programming language — LAD — FBD	Yes Yes
configuration / programming / header Programming language — LAD — FBD — SCL	Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection	Yes Yes Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection	Yes Yes Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection	Yes Yes Yes Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection	Yes Yes Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection	Yes Yes Yes Yes Yes Yes Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection • protection of confidential configuration data	Yes Yes Yes Yes Yes Yes Yes Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection • protection of confidential configuration data • Protection level: Write protection	Yes Yes Yes Yes Yes Yes Yes Yes Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection • protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection	Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection • protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection	Yes Yes Yes Yes Yes Yes Yes Yes Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection • protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection programming / cycle time monitoring / header	Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection • protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection programming / cycle time monitoring / header • adjustable	Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection • protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection programming / cycle time monitoring / header	Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection • protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection programming / cycle time monitoring / header • adjustable Dimensions Width	Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection • protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection programming / cycle time monitoring / header • adjustable Dimensions	Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection • User program protection/password protection • Copy protection • Block protection Access protection • protection of confidential configuration data • Protection level: Write protection • Protection level: Read/write protection • Protection level: Complete protection programming / cycle time monitoring / header • adjustable Dimensions Width	Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection	Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection	Yes
configuration / programming / header Programming language — LAD — FBD — SCL Know-how protection	Yes