## **SIEMENS**

## **Data sheet**

6ES7212-1HE40-0XB0



Figure similar

SIMATIC S7-1200, CPU 1212C, compact CPU, DC/DC/relay, onboard I/O: 8 DI 24 V DC; 6 DO relay 2 A; 2 AI 0-10 V DC, Power supply: DC 20.4-28.8V DC, Program/data memory 75 KB

Product ype designation CPU 1212C DC/DC/relay Firmware version V4.5 Engineering with  • Programming package STEP 7 V17 or higher  Supply voltage  Rated value (DC) • 24 V DC permissible range, lower limit (DC) 28.8 V Reverse polarity protection Yes Load voltage L* • Rated value (DC) • permissible range, lower limit (DC) 24 V permissible range, lower limit (DC) 24 V permissible range, upper limit (DC) 24 V permissible range, lower limit (DC) 28.8 V  Input current  Current consumption (rated value) 400 mA; CPU only Current consumption (rated value) 12 On mA; CPU with all expansion modules Inrush current, max. 12 A; at 28.8 V Pt 0.8 A²s  Output current  for backplane bus (5 V DC), max. 1000 mA; Max. 5 V DC for SM and CM  Encoder supply 24 V encoder supply 24 V encoder supply 924 V encoder supply 924 V Encoder supply 90 W  Memory  Work memory 9 integrated 75 kbyte 9 wy  Memory 9 integrated 75 kbyte 9 capandable No 1 Dad memory 9 integrated 9 Labyte 9 Plug-in (SIMATIC Memory Card), max. With SIMATIC memory card  Backup 9 present Yes 9 without battery  CPU processing times	General information	
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) 20.4 V permissible range, upper limit (DC) 20.4 V permissible range, lower limit (DC) 20.4 V permissible range, upper limit (DC) 20.4 V policiturerott  Current consumption (rated value) 400 mA; CPU only Current consumption (rated value) 400 mA; CPU with all expansion modules limits current, max. 12 A; at 28.8 V Pit 0.8 A²s  Output current for backplane bus (5 V DC), max. 1 000 mA; Max. 5 V DC for SM and CM  Encoder supply 24 V encoder supply 24 V encoder supply 24 V	Product type designation	CPU 1212C DC/DC/relay
Programming package  Supply voltage  Rated value (DC)	Firmware version	V4.5
Rated value (DC)  • 24 V DC  permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) Reverse polarity protection  Rated value (DC) • Passes	Engineering with	
Rated value (DC)  • 24 V DC  • 24 V DC  permissible range, lower limit (DC)  Reverse polarity protection  Rated value (DC)  • permissible range, upper limit (DC)  Reverse polarity protection  Yes  Load voltage L+  • Rated value (DC)  • permissible range, lower limit (DC)  • permissible range, lower limit (DC)  • permissible range, lower limit (DC)  • permissible range, upper limit (DC)  • 24 V  • 1 200 mA; CPU only  20 Max. 5 V DC for SM and CM  Encoder supply  • 24 V  • 1 000 mA; Max. 5 V DC for SM and CM  Encoder supply  • 24 V  • L+ minus 4 V DC min.   Power loss  Power loss, typ.  • 9 W  Memory  Work memory  • integrated  • expandable  • expandable  • No  Load memory  • integrated  • expandable  • Plug-in (SIMATIC Memory Card), max.  with SIMATIC memory card  Backup  • present  • present  • maintenance-free  • without battery  Yes	<ul> <li>Programming package</li> </ul>	STEP 7 V17 or higher
e 24 V DC 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, upper limit (DC) 20.4 V • permissible range, upper limit (DC) 20.4 V • permissible range, upper limit (DC) 28.8 V  Input current  Current consumption (rated value) 400 mA; CPU only Current consumption (rated value) 12 A; at 28.8 V  Pt 0.8 A²s  Output current  for backplane bus (5 V DC), max. 1 000 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. 9 W  Memory  Work memory • integrated 75 kbyte • expandable No Load memory • integrated 2 Mbyte • Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card  Backup • present Yes • without battery Yes	Supply voltage	
permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection  Load voltage L+  • Rated value (DC) • permissible range, lower limit (DC) permissible range, lower limit (DC) • permissible range, lower limit (DC) • permissible range, lower limit (DC) • permissible range, upper limit (DC) • permissible range, upper limit (DC)  22.4 V • permissible range, upper limit (DC)  28.8 V  Input current  Current consumption (rated value) Current consumption, max. 1 200 mA; CPU only Current consumption, max. 1 2 A; at 28.8 V  If 0.8 A²-s  Output current  for backplane bus (5 V DC), max. 1 1 000 mA; Max. 5 V DC for SM and CM  Encoder supply 24 V encoder supply • 24 V	Rated value (DC)	
permissible range, upper limit (DC) Reverse polarity protection Yes  Load voltage L+  Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection  Current consumption (rated value) Current consumption (rated value) Current consumption, max. 1 200 mA; CPU only Current consumption, max. 1 200 mA; CPU with all expansion modules Inrush current, max. 1 2 A; at 28.8 V  Poutput current  for backplane bus (5 V DC), max. 1 000 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.  9 W  Memory  Work memory  integrated printegrated No Load memory integrated Pluy-in (SIMATIC Memory Card), max.  Backup  • present Pesent Pese Piloy-in (SIMATIC Memory Card), max. Pese Piloy-in (SIMATIC memory card Pese Piloy-in (SIMATIC memory Card) Pese Pese Piloy-in (SIMATIC memory Card) Pese Pese Pese Pese Pese Pese Pese Pes	• 24 V DC	Yes
Reverse polarity protection  Load voltage L+  Rated value (DC)  permissible range, lower limit (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  28.8 V  Input current  Current consumption (rated value)  Current consumption, max.  1 200 mA; CPU only  Current consumption, max.  1 200 mA; CPU with all expansion modules  Inrush current, max.  1 2 A; at 28.8 V  Pt  0.8 A²-s  Output current  for backplane bus (5 V DC), max.  1 000 mA; Max. 5 V DC for SM and CM  Encoder supply  24 V encoder supply  24 V encoder supply  24 V encoder supply  9 W  Memory  Work memory  integrated  expandable  No  Load memory  integrated  Plug-in (SIMATIC Memory Card), max.  with SIMATIC memory card  maintenance-free  ves  without battery  Yes	permissible range, lower limit (DC)	20.4 V
Load voltage L+  • Rated value (DC) • permissible range, lower limit (DC) • permissible range, upper limit (DC) 20.4 V • permissible range, upper limit (DC) 28.8 V  Input current  Current consumption (rated value) 400 mA; CPU only Current consumption, max. 1 200 mA; CPU with all expansion modules Inrush current, max. 12 A; at 28.8 V  I**  Output current  for backplane bus (5 V DC), max. 1 000 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. 9 W  Memory  Work memory • integrated • expandable Load memory • integrated • expandable Load memory • integrated • Plug-in (SIMATIC Memory Card), max.  Backup • present • maintenance-free • without battery  Yes • without battery  Yes	permissible range, upper limit (DC)	28.8 V
Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  28.8 V  Input current  Current consumption (rated value)  Current consumption, max.  1 200 mA; CPU only  Current consumption, max.  1 200 mA; CPU with all expansion modules  Inrush current, max.  12 A; at 28.8 V  Pt  0.8 A²-s  Output current  for backplane bus (5 V DC), max.  1 000 mA; Max. 5 V DC for SM and CM  Encoder supply  24 V encoder supply  24 V		Yes
permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC)  linut current  Current consumption (rated value) Current consumption, max. 1 200 mA; CPU only Current consumption, max. 1 200 mA; CPU with all expansion modules Inrush current, max. 1 2 A; at 28.8 V  Output current  for backplane bus (5 V DC), max. 1 000 mA; Max. 5 V DC for SM and CM  Encoder supply 24 V encoder supply 24 V	Load voltage L+	
permissible range, upper limit (DC)    Input current	<ul><li>Rated value (DC)</li></ul>	24 V
Input current  Current consumption (rated value) Current consumption, max. Inrush current, max. Inrush current, max. Intush current, max. Intush current Int	• • • • • • • • • • • • • • • • • • • •	
Current consumption (rated value) Current consumption, max.  Inrush current, max.  It a can be seen to see the	permissible range, upper limit (DC)	28.8 V
Current consumption, max.  Inrush current, max.  It is at 28.8 V  It is at 28.8 V  Output current  for backplane bus (5 V DC), max.  Inrush current  for backplane bus (5 V DC), max.  Inrush current  Inrush current  Inrush current  Inrush current  Inrush current, max.  Inrush current Inrush current, max.  Inrush current Inrush current, max.  Inrush current Inrush c	Input current	
Inrush current, max.  I²t 0.8 A²-s  Output current  for backplane bus (5 V DC), max.  I 000 mA; Max. 5 V DC for SM and CM  Encoder supply  24 V encoder supply  • 24 V	Current consumption (rated value)	400 mA; CPU only
IPT 0.8 A2-S  Output current  for backplane bus (5 V DC), max. 1 000 mA; Max. 5 V DC for SM and CM  Encoder supply  24 V encoder supply  • 24 V	Current consumption, max.	1 200 mA; CPU with all expansion modules
Output current  for backplane bus (5 V DC), max.  I 000 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.  9 W  Memory  Work memory  • integrated • expandable  Load memory  • integrated • Plug-in (SIMATIC Memory Card), max.  Backup  • present • maintenance-free • without battery  Yes	Inrush current, max.	12 A; at 28.8 V
for backplane bus (5 V DC), max.  1 000 mA; Max. 5 V DC for SM and CM  Encoder supply  24 V encoder supply  • 24 V	l²t	0.8 A <sup>2</sup> ·s
Encoder supply  24 V encoder supply  • 24 V  L+ minus 4 V DC min.  Power loss  Power loss, typ.  9 W  Memory  Work memory  • integrated • expandable • expandable No  Load memory  • integrated • Plug-in (SIMATIC Memory Card), max.  Backup  • present • maintenance-free • without battery  Yes	Output current	
24 V encoder supply  • 24 V  L+ minus 4 V DC min.  Power loss  Power loss, typ.  9 W  Memory  Work memory  • integrated • expandable No  Load memory  • integrated • Plug-in (SIMATIC Memory Card), max.  Backup  • present • maintenance-free • without battery  Yes	for backplane bus (5 V DC), max.	1 000 mA; Max. 5 V DC for SM and CM
L+ minus 4 V DC min.  Power loss  Power loss, typ.  9 W  Memory  Work memory  integrated  expandable  No  Load memory  integrated  Plug-in (SIMATIC Memory Card), max.  Backup  present  present  maintenance-free  without battery  L+ minus 4 V DC min.  9 W  Whithout battery  9 W  Whency	Encoder supply	
Power loss Power loss, typ. 9 W  Memory  Work memory  integrated 75 kbyte expandable No  Load memory  integrated 2 Mbyte Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card  Backup present Yes maintenance-free Yes without battery Yes	24 V encoder supply	
Power loss, typ.  Memory  Work memory  integrated expandable  Load memory  integrated Plug-in (SIMATIC Memory Card), max.  Backup  present maintenance-free without battery  9 W  8 W  9 W  9 W  9 W  9 W  9 W  9 W	• 24 V	L+ minus 4 V DC min.
Memory  Work memory  integrated 75 kbyte expandable No  Load memory  integrated 2 Mbyte Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card  Backup  present Yes maintenance-free Yes without battery Yes	Power loss	
Work memory  integrated  expandable  No  Load memory  integrated  Plug-in (SIMATIC Memory Card), max.  with SIMATIC memory card  Backup  present  maintenance-free  without battery  Yes	Power loss, typ.	9 W
<ul> <li>integrated</li> <li>expandable</li> <li>No</li> </ul> Load memory <ul> <li>integrated</li> <li>Plug-in (SIMATIC Memory Card), max.</li> <li>Backup</li> <li>present</li> <li>maintenance-free</li> <li>with Old Market</li> </ul> Yes <ul> <li>without battery</li> </ul> 75 kbyte <ul> <li>No</li> </ul> Wes <ul> <li>with SIMATIC memory card</li> </ul> Yes <ul> <li>without battery</li> </ul> Yes <ul> <li>without battery</li> </ul> Yes <ul> <li>without battery</li> </ul> 75 kbyte <ul> <li>Wes</li> </ul> Yes <ul> <li>without battery</li> </ul> Yes <ul> <li>Wes</li> </ul> Yes <ul> <li>without battery</li> </ul> Yes <ul> <li>Wes</li> </ul> Yes <ul> <li>Wes <ul> <li>Wes</li> <li>Wes <li>Wes</li> <li>Wes</li> <li>Wes</li> <li>Wes</li> <li>Wes</li></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul></li></ul>	Memory	
<ul> <li>expandable</li> <li>Load memory</li> <li>integrated</li> <li>Plug-in (SIMATIC Memory Card), max.</li> <li>Backup</li> <li>present</li> <li>maintenance-free</li> <li>with SIMATIC memory card</li> </ul>	Work memory	
Load memory  integrated Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card  Backup  present maintenance-free without battery  Yes	<ul><li>integrated</li></ul>	75 kbyte
<ul> <li>integrated</li> <li>Plug-in (SIMATIC Memory Card), max.</li> <li>backup</li> <li>present</li> <li>maintenance-free</li> <li>with SIMATIC memory card</li> </ul> Yes <ul> <li>without battery</li> </ul>	• expandable	No
<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> <li>Backup</li> <li>present</li> <li>maintenance-free</li> <li>with SIMATIC memory card</li> <li>Yes</li> <li>maintenance-free</li> <li>without battery</li> <li>Yes</li> </ul>	Load memory	
Backup  • present  • maintenance-free  • without battery  Yes  Yes	•	2 Mbyte
<ul> <li>present</li> <li>maintenance-free</li> <li>without battery</li> <li>Yes</li> <li>Yes</li> <li>Yes</li> </ul>	<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	with SIMATIC memory card
<ul> <li>maintenance-free</li> <li>without battery</li> <li>Yes</li> </ul>	Backup	
without battery     Yes	• present	Yes
,	<ul> <li>maintenance-free</li> </ul>	Yes
CPU processing times	without battery	Yes
	CPU processing times	

for hit appretions, tup	0.00 up. / instruction
for bit operations, typ.	0.08 µs; / instruction
for word operations, typ.	1.7 μs; / instruction 2.3 μs; / instruction
for floating point arithmetic, typ.	2.3 µs, / Ilistruction
CPU-blocks	DDs FCs FDs sounters and timers. The maximum number of
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	TTROYCO
• 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
<ul> <li>Outputs, adjustable</li> </ul>	1 kbyte
Hardware configuration	
Number of modules per system, max.	3 comm. modules, 1 signal board, 2 signal modules
Time of day	
Clock	
Hardware clock (real-time)	Yes
Backup time	480 h; Typical
Deviation per day, max.	±60 s/month at 25 °C
Digital inputs	
Number of digital inputs	8; 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.	8
Input voltage	
<ul> <li>Rated value (DC)</li> </ul>	24 V
● for signal "0"	5 V DC at 1 mA
● for signal "1"	15 V DC at 2.5 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable
04 "0" to "4"	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	100
— parameterizable	Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3
parameterizable	@ 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	6; 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	
<ul> <li>Number of relay outputs</li> </ul>	6
<ul> <li>Number of operating cycles, max.</li> </ul>	mechanically 10 million, at rated load voltage 100 000

Cable laweth	
Cable length	500 m
<ul><li>shielded, max.</li><li>unshielded, max.</li></ul>	500 m 150 m
·	130 111
Analog inputs	2
Number of analog inputs Input ranges	2
• Voltage	Yes
Input ranges (rated values), voltages	163
• 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
<ul> <li>Number of ports</li> </ul>	1
integrated switch	No
Protocols	
PROFINET IO Controller	Yes
PROFINET IO Device     NATIO appropriation	Yes
SIMATIC communication     Open IF communication	Yes
Open IE communication     Web conver	Yes; Optionally also encrypted
<ul><li>Web server</li><li>Media redundancy</li></ul>	Yes No
PROFINET IO Controller	INO
Transmission rate, max.	100 Mbit/s
Services	. 55
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFlenergy	No
— Prioritized startup	Yes
<ul> <li>Number of IO devices with prioritized startup,</li> </ul>	16
max.	40
Number of connectable IO Devices, max.	16
<ul> <li>Number of connectable IO Devices for RT, max.</li> </ul>	16
— of which in line, max.	16
Activation/deactivation of IO Devices	Yes
Number of IO Devices that can be	8
simultaneously activated/deactivated, max.	
<ul> <li>Updating time</li> </ul>	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	actions and the qualitity of configured ager adia.
Services	
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No

DDOCloneray	Voo
PROFlenergy     Shared device	Yes Yes
— Snared device     — Number of IO Controllers with shared device,	2
max.	2
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	110
• S7 routing	Yes
Open IE communication	1.50
• TCP/IP	Yes
— Data length, max.	8 kbyte
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	8 kbyte
• UDP	Yes
<ul><li>Data length, max.</li></ul>	1 472 byte
Web server	
<ul><li>supported</li></ul>	Yes
User-defined websites	Yes
OPC UA	
<ul> <li>Runtime license required</li> </ul>	Yes; "Basic" license required
OPC UA Server	Yes; data access (read, write, subscribe), method call, runtime license
<ul> <li>Application authentication</li> </ul>	required Available security policies: None, Basic128Rsa15, Basic256Rsa15,
— Application authentication	Basic256Sha256
<ul> <li>User authentication</li> </ul>	"anonymous" or by user name & password
<ul> <li>Number of sessions, max.</li> </ul>	10
<ul> <li>Number of subscriptions per session, max.</li> </ul>	5
— Sampling interval, min.	100 ms
<ul><li>— Publishing interval, min.</li></ul>	200 ms
<ul> <li>Number of server methods, max.</li> </ul>	20
<ul> <li>number of monitored items, recommended</li> </ul>	1 000
max.	1 000
max.  — Number of server interfaces, max.	1 000
<ul><li>max.</li><li>— Number of server interfaces, max.</li><li>— Number of nodes for user-defined server</li></ul>	1 000
<ul><li>max.</li><li>— Number of server interfaces, max.</li><li>— Number of nodes for user-defined server interfaces, max.</li></ul>	1 000
<ul><li>max.</li><li>— Number of server interfaces, max.</li><li>— Number of nodes for user-defined server</li></ul>	1 000
max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS	1 000 2 2 000
max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  communication functions / header	1 000 2 2 000
max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  communication functions / header  S7 communication	1 000 2 2 000 Yes
max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  communication functions / header	1 000 2 2 000
max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  communication functions / header  S7 communication  • supported	1 000 2 2 2 000 Yes
max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  communication functions / header  S7 communication  • supported  • as server	1 000 2 2 2 000  Yes  Yes  Yes
max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  communication functions / header  S7 communication  • supported  • as server  • as client	1 000 2 2 000  Yes  Yes  Yes  Yes  Yes
max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  communication functions / header  S7 communication  • supported  • as server  • as client  • User data per job, max.	1 000  2 2 2 000  Yes  Yes  Yes  Yes  Yes  See online help (S7 communication, user data size)  PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved /
max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  communication functions / header  S7 communication  • supported  • as server  • as client  • User data per job, max.  Number of connections	1 000  2 2 2 000  Yes  Yes  Yes  Yes  Yes  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:
max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  communication functions / header  S7 communication  • supported  • as server  • as client  • User data per job, max.  Number of connections	1 000  2 2 2 000  Yes  Yes  Yes  Yes  Yes  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; Web Connections: 2 reserved / 30 max; OPC UA
max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  communication functions / header  S7 communication  • supported  • as server  • as client  • User data per job, max.  Number of connections	1 000  2 2 2 000  Yes  Yes  Yes  Yes  Yes  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:
max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  communication functions / header  S7 communication  • supported  • as server  • as client  • User data per job, max.  Number of connections  • overall	Yes  Yes  Yes  Yes  Yes  Yes  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; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64
max.  — Number of server interfaces, max.  — Number of nodes for user-defined server interfaces, max.  Further protocols  • MODBUS  communication functions / header  S7 communication  • supported  • as server  • as client  • User data per job, max.  Number of connections	Yes  Yes  Yes  Yes  Yes  Yes  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; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64

0	V
Status/control variable	Yes
• Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	Voc
Forcing  Diagnostic buffer	Yes
Diagnostic buffer  • present	Yes
Traces	1 05
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
	163
Integrated Functions	V
Frequency measurement	Yes
controlled positioning	Yes
Number of positioning axes via pulse-direction interface	8 Up to 4 with SR 1222
Number of positioning axes via pulse-direction interface PID controller	Up to 4 with SB 1222
Number of alarm inputs	Yes 4
·	7
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	0.1
Potential separation digital outputs	Relays
between the channels	No
between the channels, in groups of	2
EMC	
Interference immunity against discharge of static electricity	
<ul> <li>Interference immunity against discharge of static electricity acc. to IEC 61000-4-2</li> </ul>	Yes
Test voltage at air discharge	8 kV
Test voltage at all discharge  Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	O NV
Interference immunity on supply lines acc. to IEC	Yes
61000-4-4	
<ul> <li>Interference immunity on signal cables acc. to IEC</li> </ul>	Yes
61000-4-4	
Interference immunity against voltage surge	
Interference immunity on supply lines acc. to IEC	Yes
61000-4-5	
Interference immunity against conducted variable disturbance	
<ul> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-4-6</li> </ul>	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	
	Voc
CE mark	Yes
UL approval cULus	Yes
	Yes Yes
FM approval	Yes
RCM (formerly C-TICK) KC approval	Yes
Marine approval	Yes
· ·	100
Ambient conditions	
Free fall	0.2 m: five times, in product package
Fall height, max.	0.3 m; five times, in product package

Ambient temperature during operation	
• min.	-20 °C
• max.	60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical
<ul> <li>horizontal installation, min.</li> </ul>	-20 °C
<ul> <li>horizontal installation, max.</li> </ul>	60 °C
<ul> <li>vertical installation, min.</li> </ul>	-20 °C
<ul> <li>vertical installation, max.</li> </ul>	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
<ul> <li>Operation, max.</li> </ul>	1 080 hPa
<ul> <li>Storage/transport, min.</li> </ul>	660 hPa
<ul> <li>Storage/transport, max.</li> </ul>	1 080 hPa
Altitude during operation relating to sea level	
Installation altitude, min.	-1 000 m
<ul> <li>Installation altitude, max.</li> </ul>	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	
Operation, max.	95 %; no condensation
Vibrations	
<ul> <li>Vibration resistance during operation acc. to IEC 60068-2-6</li> </ul>	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
<ul> <li>Operation, tested according to IEC 60068-2-6</li> </ul>	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	
<ul> <li>SO2 at RH &lt; 60% without condensation</li> </ul>	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	163
User program protection/password protection	Yes
Copy protection	Yes
Block protection  Access protection	Yes
Access protection	Von
protection of confidential configuration data     Protection level; Write protection	Yes
Protection level: Write protection	Yes
Protection level: Read/write protection	Yes
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	V
adjustable	Yes
Di	
Dimensions	00
Dimensions Width	90 mm
	90 mm 100 mm
Width	
Width Height Depth	100 mm
Height Depth Weights	100 mm 75 mm
Width Height Depth	100 mm