## **SIEMENS**

## **Data sheet**

SIMATIC S7-1200, CPU 1215C, compact CPU, DC/DC/DC, 2 PROFINET ports, onboard I/O: 14 DI 24 V DC; 10 DO 24 V DC; 0.5 A; 2 AI 0-10 V DC, 2 AO 0-20 mA DC, power supply: DC 20.4-28.8 V DC, program/data memory 200 KB



General information	
Product type designation	CPU 1215C DC/DC/DC
Firmware version	V4.6
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V18 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+	
<ul> <li>Rated value (DC)</li> </ul>	24 V
<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
<ul> <li>permissible range, upper limit (DC)</li> </ul>	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 DC
l²t	0.5 A²·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	200 kbyte
Load memory	
• integrated	4 Mbyte
<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	with SIMATIC memory card
Backup	
• present	Yes
• maintenance-free	Yes
<ul><li>without battery</li></ul>	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	
<ul><li>Number, max.</li></ul>	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	· Nejte
Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
Time of day	5 Serial Medico, 1 Signal Dould, 5 Signal Medico
Clock	
	Yes
Hardware clock (real-time)     Packup time	
Backup time     Deviction par day, may	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	
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	0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four
— at "0" to "1", min.	0.2 ms
— at "0" to "1", max.	12.8 ms
for interrupt inputs	
— parameterizable	Yes
for technological functions	
— parameterizable	Single phase: 3 @ 100 kHz & 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
of which high-speed outputs	4; 100 kHz Pulse Train Output
Limitation of inductive shutdown voltage to	L+ (-48 V)
Switching capacity of the outputs	
<ul><li>with resistive load, max.</li></ul>	0.5 A
on lamp load, max.	5 W
Output voltage	
• for signal "0", max.	0.1 V; with 10 kOhm load
• for signal "1", min.	20 V
Output current	

for signal "0" residual current, max.	0.1 mA
Output delay with resistive load	
• "0" to "1", max.	1 μs
• "1" to "0", max.	5 µs
Switching frequency	
<ul> <li>of the pulse outputs, with resistive load, max.</li> </ul>	100 kHz
Relay outputs	
Number of relay outputs	0
Cable length	
• shielded, max.	500 m
• unshielded, max.	150 m
Analog inputs	100 111
Number of analog inputs	2
	2
Input ranges	Voc
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	
<ul> <li>Resolution with overrange (bit including sign), max.</li> </ul>	10 bit
<ul> <li>Integration time, parameterizable</li> </ul>	Yes
Conversion time (per channel)	625 µs
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	10 bit
Encoder	10 Dit
Connectable encoders	
	Van
• 2-wire sensor	Yes
1. Interface	
Interface type	PROFINET
Isolated	Yes
Isolated automatic detection of transmission rate	Yes Yes
Isolated automatic detection of transmission rate Autonegotiation	Yes Yes Yes
Isolated automatic detection of transmission rate	Yes Yes
Isolated automatic detection of transmission rate Autonegotiation	Yes Yes Yes
automatic detection of transmission rate  Autonegotiation  Autocrossing	Yes Yes Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types	Yes Yes Yes Yes Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet)	Yes Yes Yes Yes Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports	Yes Yes Yes Yes Yes 2
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch	Yes Yes Yes Yes Yes 2
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols	Yes Yes Yes Yes Yes Yes Yes Yes 2 Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols • PROFINET IO Controller	Yes Yes Yes Yes Yes Yes Yes Yes 2 Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device	Yes Yes Yes Yes Yes Yes Yes 2 Yes Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication	Yes Yes Yes Yes Yes Yes Yes  Yes 2 Yes Yes Yes Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server	Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy	Yes Yes Yes Yes Yes Yes Yes 2 Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy  PROFINET IO Controller	Yes Yes Yes Yes Yes  Yes  Yes  Yes  Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy  PROFINET IO Controller • Transmission rate, max.	Yes Yes Yes Yes Yes Yes Yes 2 Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy  PROFINET IO Controller Transmission rate, max. Services	Yes Yes Yes Yes Yes  Yes  Yes  Yes  Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy  PROFINET IO Controller Transmission rate, max. Services — PG/OP communication	Yes Yes Yes Yes Yes Yes  Yes  Yes  Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy  PROFINET IO Controller • Transmission rate, max.  Services  — PG/OP communication — Isochronous mode	Yes Yes Yes Yes Yes  Yes  Yes  Yes  Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy  PROFINET IO Controller • Transmission rate, max.  Services  — PG/OP communication — Isochronous mode — IRT	Yes Yes Yes Yes Yes Yes  Yes  Yes Yes Ye
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy  PROFINET IO Controller • Transmission rate, max.  Services  — PG/OP communication — Isochronous mode — IRT — PROFIenergy	Yes Yes Yes Yes Yes  Yes  Yes  Yes  Yes
Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy  PROFINET IO Controller • Transmission rate, max.  Services  — PG/OP communication — Isochronous mode — IRT	Yes Yes Yes Yes Yes Yes Yes  Yes Yes Yes

<ul> <li>Number of IO devices with prioritized startup, max.</li> </ul>	16
<ul> <li>Number of connectable IO Devices, max.</li> </ul>	16
<ul> <li>Number of connectable IO Devices for RT, max.</li> </ul>	16
— of which in line, max.	16
<ul> <li>Activation/deactivation of IO Devices</li> </ul>	Yes
<ul> <li>Number of IO Devices that can be simultaneously activated/deactivated, max.</li> </ul>	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
— PROFlenergy	Yes
— Shared device	Yes
<ul> <li>Number of IO Controllers with shared device, max.</li> </ul>	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	165
Media redundancy	
— MRP	Yes; as MRP redundancy manager and/or MRP client
— MRPD	No
SIMATIC communication	NO
	Yes
S7 routing Open IE communication	165
TCP/IP	Yes
— Data length, max.	8 kbyte
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	8 kbyte
• UDP	Yes
— Data length, max.	1 472 byte
Web server	V
• supported	Yes
User-defined websites	Yes
OPC UA	V 10 1111
Runtime license required	Yes; "Basic" license required
OPC UA Server	Yes; data access (read, write, subscribe), method call, runtime license required
— Application authentication	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
<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
<ul><li>— Sampling interval, min.</li></ul>	100 ms
— Publishing interval, min.	200 ms
<ul> <li>Number of server methods, max.</li> </ul>	20
<ul> <li>Number of monitored items, recommended max.</li> </ul>	1 000
<ul> <li>Number of server interfaces, max.</li> </ul>	2
<ul> <li>Number of nodes for user-defined server interfaces, max.</li> </ul>	2 000
Further protocols	

Size communication functions / header  Size communication  supported as server as client Ves as client Ves See online help (\$7 communication, user data size)  PG Connections a reserved / 18 max, Web Connections 12 reserved / 18 max, Web Connections 2 reserved / 18 max, Web Connections 3 reserved / 18 max, Web Connections 2 reserved / 18 max, Web Connections 3 reserved / 18 max, Web Connections 2 reserved / 18 max, Web Connections 3 reserved / 18 max, Web Connections 2 reserved / 18 max, Web Connections 3 reserved / 18 max, Web Connections 3 reserved / 18 max, Web Connections 2 reserved / 18 max, Web Connections 3 reserved / 18 max, Web Connections 4 reserved / 18 max,	• MODBUS	Yes
S7 communication  * supported  * sa server  * as client  * User data per joh, max.  * See online help (\$7 communication, user data size)  Number of connections  * overall  * Overall  * PG Connections - 4 reserved 1.4 max; PM Connections: 12 reserved 1.5 max; PG UA Connections: 19 reserved 1.5 max; PG UA Connections: 19 reserved 1.5 max; PG UA Connections: 19 reserved 1.6 max; PG UA Connections: 19 reser		
supported     as server     as clent     yes     as clent     yes     as clent     yes     se contine help (S7 communication, user data size)  Number of connections      overall     S7 Connections: 4 reserved / 4 max; MMI Connections: 12 reserved / 18 S7 Connections: 4 reserved / 14 max; CMD Connections: 12 reserved / 18 S7 Connections: 2 reserved / 18 max; CMD LAM Connections: 0 reserved / 10 max; Total Connections: 2 reserved / 18 max CMD LAM Connections: 0 reserved / 10 max; Total Connections: 2 reserved / 18 max  **Test commissioning functions**  **Status/control variable**     **Status/control variable**     **Status/control variable**     **Variables**     **Variables**     **Variables**     **Proring     **Forcing     **Forcing     **Forcing     **Persong     **Persong     **Persong     **Persong     **Persong     **Number of configurable Traces     **Number of counters     ***Counting frequency, max.**     ***Prequency measurement     ***Yes     ***Number of position-controlled positioning axes, max.**     ***Number of positioning axes via pulse-direction interface     ***Preparation of the counters     ***Counting frequency (pulse)     ***Potential separation digital inputs     ***Potential separation digital outputs     ***Potential separation digital outputs     ****Potential separation digital outputs     ****Potential separation digital outputs     *****Potential separation digital outputs     *****Potential separation digital outputs     **********Potential separation digital outputs     **************************		
as server as client Ves as client Ves As client Ves See online help (S7 communication, user data size)  Number of connections  • overall  • Order data per job, max.  See online help (S7 communication, user data size)  Number of connections • overall  • Order data per job, max.  • overall  • Order data per job, max.  For Connections: A reserved / 4 max, HMI Connections: 12 reserved / 18 for S7 Connections: 2 reserved / 19 max, Total Connections: 3 max of PCU A Connections:		Yes
User data per job, max.  Ves  See online help (S7 communication, user data size)  Number of connections:  * Overall  **PG Connections: 8 reserved / 4 max; HMI Connections: 12 reserved / 18 rs 7 Connections: 8 reserved / 18 max; CPC LM Connections: 9 reserved max; Web Connections: 9 reserved max; Web Connections: 9 reserved / 30 max; (OPC LM Connections: 0 reserved max; Web Connections: 34 reserved / 64 max  **Test commissioning functions**  **Status/control  **Status/control variable	• • • • • • • • • • • • • • • • • • • •	
- User data per job, max.  Number of connections  - overall  - ov		
Number of connections  • overall  • overall  • overall  PC Connections: 4 reserved / 4 max; HMI Connections: 9 reserved / 16 max; HMI Connections: 9 reserved / 16 max; Open User Connections: 9 reserved / 16 max; Open User Connections: 9 reserved / 16 max; Total Connections: 94 reserved / 64 max   Test commissioning functions  Sistus/control  • Status/control variable  • Variables  Forcing  • Forcing  • Forcing  • Forcing  • Present  Traces  • Number of configurable Traces  • Country State Process of the State Information  Diagnostics indication LED  • RENOR LED  • PERROR LED  • PERROR LED  • State State State Information  Countre  • Number of counters  • Counting frequency, max  Frequency measurement  Ves  Countrolled positioning axes via pulse-direction interface  PIC controller  Ves  Number of position-controlled positioning axes, max  Number of positioning axes via pulse-direction interface  PiC controller  • Potential separation digital inputs  • Potential separation digital inputs  • Potential separation digital inputs  • Potential separat		
P.G. Connections: 4 reserved / 4 max; rMt (Connections: 12 reserved / 18 reserved / 18 max; Open User Caccions 8 reserved reserved max; Web Connections: 24 reserved / 30 max; OPC UA Connections: 0 res / 10 max; Total Connections: 34 reserved / 30 max; OPC UA Connections: 0 res / 10 max; Total Connections: 34 reserved / 64 max  Status/control variable  Ves Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters   Forcing		occ offiline help (or confinitumeation, user data size)
S7 Connections. 8 reserved / 14 max; Open User Connections 8. Preserved / 30 max; NPOL Connections: 0 res / 10 max; NPOL Connections: 34 reserved / 64 max  Test commissioning functions  Status/control variable		PG Connections: 4 reserved / 4 max: HMI Connections: 12 reserved / 18 max:
Status/control variable  Status/control variable  Vaes  Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters  Forcing  Forcing  Forcing  Forcing  Forcing  Forcing  Present  Yes  Traces  Number of configurable Traces  Number of postitioning axes via pulse-direction interface  Number of opstitioning axes via pulse-direction interface  Number of postitioning axes via pulse-direction interface  PID controller  PID controller  Number of postitioning axes via pulse-direction interface  PID controller  Number of postitioning axes via pulse-direction interface  PID controller  Number of postitioning axes via pulse-direction interface  PID controller  Number of postitioning axes via pulse-direction interface  PID controller  Number of postitioning axes via pulse-direction interface  PID controller  Number of postitioning axes via pulse-direction interface  PID controller  Number of postitioning axes via pulse-direction interface  PID controller  Number of postitioning axes via pulse-direction interface  PID controller  Number of postitioning axes via pulse-direction interface  PID controller  Potential separation digital inputs  Potential separation digital inputs  Potential separation digital inputs  Potential separation digital inputs  Potential separation digital outputs  Potential separation		S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved
Status/control variable  Ves Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing  Forcing  Forcing  Forcing  Forcing  Forcing  Forcing  Yes  Diagnostic buffer  present  Yes  Itaacs  Number of configurable Traces  Number of Puts Number of Counters  Number of counters  Counter  Number of counters  Counter  Number of counters  Counting frequency, max.  Frequency measurement  Yes  Controlled positioning  Yes  Number of positioning axes, max.  Number of positioning axes via pulse-direction interface  PID controller  Number of alarm inputs  Number of pulse outputs  Limit frequency (pulse)  Potential separation digital inputs  Potential separation digital inputs  Potential separation digital inputs  Potential separation digital outputs	Test commissioning functions	
Forcing  For	Status/control	
Forcing Yes Diagnostic buffer  • present Yes  • present Yes  • Number of configurable Traces • REROR LED • RENNSTOP LED • RENNSTOP LED • REROR LED • Yes • MAINT LED  Integrated Functions  Counter • Number of counters • Counting frequency, max. 100 kHz Frequency measurement controlled positioning Yes Number of position-controlled positioning axes, max. Number of position-controlled positioning axes wia pulse-direction interface PID controller Pyes Number of palam inputs 4 Number of pulse outputs 4 Limit frequency (pulse) Potential separation digital inputs • Potential separation digital inputs • Detential separation digital inputs • Detential separation digital outputs • Deten	Status/control variable	Yes
● 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  ● RUNNSTOP LED Yes  ● REROR LED Yes  ● MAINT LED Yes  Integrated Functions  Counter  ● Number of counters 6  ● Counting frequency, max. 100 kHz  Frequency measurement Yes  Controlled positioning axes via pulse-direction interface 4; With integrated outputs  PID controller  Number of position-controlled positioning axes, max. 8  Number of position-controlled positioning axes via pulse-direction interface 4; With integrated outputs  PID controller  Number of pulse outputs 4  Potential separation  Potential separation digital inputs  ● Potential separation digital inputs  ● Potential separation digital outputs  ● Potential separation digital output	<ul> <li>Variables</li> </ul>	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Diagnostic buffer  • present  Traces  • Number of configurable Traces  • Nemory size per trace, max.  florrupts/diagnostics/catus information  Diagnostics indication LED  • RUNSTOP LED  • RUNSTOP LED  • MAINT LED  • MAINT LED  • Number of counters  • Counter  • Number of counters  • Counting frequency, max.  100 kHz  Frequency measurement  controlled position-controlled positioning axes, max.  Number of position-controlled positioning axes, max.  Number of position-gaxes via pulse-direction interface  PID controller  Number of alarm inputs  4  Number of pulse outputs  4  Limit frequency (pulse)  Potential separation digital inputs  • Potential separation digital inputs  • Potential separation digital inputs  • Potential separation digital outputs  • Detember the channels, in groups of  Potential separation digital outputs  • Detween the channels, in groups of  Potential reference immunity against discharge of static electricity  • Interference immunity against discharge of static electricity	Forcing	
Diagnostic buffer  • present  races  • Number of configurable Traces  • Nemory size per trace, max.  512 kbyte  Interrupts/diagnostics/status information  Diagnostics indication LED  • RUNSTOP LED  • RUNSTOP LED  • MAINT LED  • Number of counters  • Counter  • Number of counters  • Counting frequency, max.  100 kHz  Frequency measurement  controlled positioning axes via pulse-direction interface  Number of position-controlled positioning axes, max.  Number of position-controlled positioning axes, max.  Number of plase outputs  4 Number of alarm inputs  A unimber of pulse outputs  Limit frequency (pulse)  Potential separation digital inputs  • Potential separation digital outputs  • Determination spaint discharge of static electricity  • Interference immunity against discharge of static electricity	-	Yes
• present  Traces  • Number of configurable Traces • Number of configurable Traces • Number of configurable Traces • Number of configurable Trace, max.  512 kbyte  Interrupts/diagnostics/status Information  Diagnostics indication LED  • RUN/STOP LED • REROR LED • Yes • MAINT LED  Traces  Counter • Number of counters • Counters • Counting frequency, max.  Frequency measurement • Yes controlled positioning Yes Number of position-controlled positioning axes, max.  8 Number of position-controlled positioning axes, max. 8 Number of position-controlled positioning axes via pulse-direction interface  PID controller  Frequency (pulse)  Number of polarm inputs 4 Number of polarm inputs 4 Number of polarm inputs 4 Number of pulse outputs 4 Limit frequency (pulse)  Potential separation digital inputs • Potential separation digital inputs • Potential separation digital outputs • Potential separation digital output		
Number of configurable Traces  Number of configurable Traces  Nemony size per trace, max.  100 september 12 kbyte  Number of controlled positioning axes, max.  Number of positioning axes via pulse-direction interface  Pi Controller  Number of pulse outputs  Number of pulse outputs  A Limit frequency (pulse)  Potential separation digital inputs  Potential separation digital outputs  Potential separation digita		Yes
Number of configurable Traces  Memory size per trace, max.  S12 kbyte  Interrupts/diagnostles/status information  Diagnosts indication LED  RUN/STOP LED  RUN/STOP LED  RUN/STOP LED  MAINT LED  MAINT LED  Number of counters  Counter  Number of counters  Counting frequency, max.  Frequency measurement  Controlled positioning  Number of position-controlled positioning axes, max.  Number of positioning axes via pulse-direction interface  PID controller  Number of plasm inputs  A unimber of plasm inputs  A unimber of plasm inputs  A unimber of positioning  Potential separation  Potential separation digital inputs  Potential separation digital outputs  Potential separation d		
Memory size per trace, max.  Interrupts/diagnostics/status information  Diagnostics indication LED  RUN/STOP LED  REROR LED  REROR LED  REROR LED  ROUNTED		2
Interrupts/diagnostics/status information  Diagnostics indication LED  • RUN/STOP LED • ERROR LED • MAINT LED  Yes  • MAINT LED  * Yes  • MAINT LED  * Yes  Integrated Functions  Counter • Number of counters • Counting frequency, max.  Frequency measurement  Yes  controlled positioning  Number of position-controlled positioning axes, max.  Number of positioning axes via pulse-direction interface  PID controller  Number of positioning axes via pulse-direction interface  PID controller  Yes  Number of pulse outputs  4  Number of pulse outputs  4  Limit frequency (pulse)  Potential separation digital inputs  • Potential separation digital inputs  • Potential separation digital inputs  • Potential separation digital outputs  • Interference immunity against discharge of static electricity  • Interference immunity against discharge  Fixed immunity against discharge		
Diagnostics indication LED  • RUNSTOP LED • PROR LED • MAINT LED • MAINT LED    Yes   Maint LED   Yes   Maint LED   Yes   Maint LED   Yes   Integrated Functions    Counter   • Number of counters   • Counting frequency, max.   100 kHz   Frequency measurement   Yes		
• RUN/STOP LED • ERROR LED • MAINT LED  **Tes **MAINT LED  **Number of counters • Number of counters • Counting frequency, max.  **Frequency measurement **Controlled positioning yes Number of position-controlled positioning axes, max.  **Number of position-controlled positioning axes, max.  **Number of positioning axes via pulse-direction interface **PIC controller **Puc ontroller **Pus Number of pulse outputs  **Init frequency (pulse)  **Potential separation  **Potential separation digital inputs  • Potential separation digital inputs • Potential separation digital inputs  • Potential separation digital outputs  • Detween the channels, in groups of  **Test voltage at contact discharge  **AkV  - Test voltage at contact discharge  **8 kV  - Test voltage at contact discharge  **8 kV  - Test voltage at contact discharge  **8 kV		
ERROR LED     MAINT LED     Yes  Integrated Functions  Counter     Number of counters     Number of counters     Ocunting frequency, max.     100 kHz  Frequency measurement     Yes     controlled positioning     Yes     Number of position-controlled positioning axes, max.  Number of position-controlled positioning axes, max.  Number of positioning axes via pulse-direction interface PID controller Yes Number of alarm inputs     4  Limit frequency (pulse)     100 kHz  Potential separation  Potential separation digital inputs     • Potential separation digital inputs     • Potential separation digital inputs     • Potential separation digital outputs     • Interference immunity against discharge of static electricity     • Interference immunity against discharge of static electricity     • Interference immunity against discharge     • Etct voltage at air discharge     — Test voltage at air discharge     8 kV     — Test voltage at contact discharge		Vac
MAINT LED  Number of counters  Counter  Number of counters  Counting frequency, max.  Frequency measurement  Yes  controlled positioning  Number of position-controlled positioning axes, max.  Number of position-controlled positioning axes, max.  Number of positioning axes via pulse-direction interface  PID controller  Number of alarm inputs  Number of pulse outputs  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  Potential separation digital inputs  Potential separation digital outputs  Potential separation digital output		
Number of counters		
Counter  • Number of counters • Counting frequency, max.  Frequency measurement Yes  controlled positioning Number of position-controlled positioning axes, max.  Number of positioning axes via pulse-direction interface PID controller Yes  Number of positioning axes via pulse-direction interface PID controller Yes  Number of alarm inputs 4  Number of pulse outputs 4  Limit frequency (pulse)  Potential separation  Potential separation digital inputs • Potential separation digital inputs  • Potential separation digital outputs  • Detween the channels, in groups of  1  Potential separation digital outputs  • Detween the channels • Det		res
Number of counters Counting frequency, max.  Frequency measurement Yes  controlled positioning Yes  Number of position-controlled positioning axes, max.  Number of positioning axes via pulse-direction interface Yes  Number of positioning axes via pulse-direction interface Yes  Number of alarm inputs  Number of alarm inputs 4  Number of pulse outputs 4  Limit frequency (pulse) 100 kHz  Potential separation  Potential separation digital inputs Potential separation digital inputs Potential separation digital outputs Potential	-	
Counting frequency, max.  Frequency measurement  Yes  controlled positioning  Number of position-controlled positioning axes, max.  Number of positioning axes via pulse-direction interface  PID controller  Number of alarm inputs  Number of alarm inputs  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  Potential separation digital inputs  Potential separation digital outputs		
Frequency measurement  controlled positioning  Number of position-controlled positioning axes, max.  Number of positioning axes via pulse-direction interface  PID controller  Yes  Number of alarm inputs  Number of pulse outputs  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  Potential separation digital inputs  Potential separation digital outputs  Potential separation dig		
Controlled positioning  Number of position-controlled positioning axes, max.  Number of positioning axes via pulse-direction interface  PID controller  Yes  Number of alarm inputs  A  Number of pulse outputs  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  Potential separation digital inputs  Potential separation digital outputs  Potential separation  Potential separation digital outputs  Potential separation  Potential sepa		
Number of position-controlled positioning axes, max.  Number of positioning axes via pulse-direction interface  PID controller  Yes  Number of alarm inputs  4  Number of pulse outputs  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  • Potential separation digital inputs  • Potential separation digital outputs  Potential separation digital outputs  • Detween the channels  • between the channels, in groups of  1  EMC  Interference immunity against discharge of static electricity  • Interference immunity against discharge of static electricity	Frequency measurement	
Number of positioning axes via pulse-direction interface PID controller Yes Number of alarm inputs 4 Number of pulse outputs Limit frequency (pulse) Potential separation  Potential separation digital inputs  Potential separation digital inputs Potential separation digital inputs Potential separation digital outputs Potential separation digital inputs Potential se	controlled positioning	Yes
PID controller  Number of alarm inputs  A Number of pulse outputs  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  Potential separation digital inputs  Potential separation digital inputs  Potential separation digital outputs  Potential separation gital outputs  Potential separation digital inputs  No  Potential separation digital inputs  Potential separation	Number of position-controlled positioning axes, max.	8
Number of alarm inputs  Number of pulse outputs  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  Potential separation digital inputs  Potential separation digital inputs  Potential separation digital outputs  Potential separ	Number of positioning axes via pulse-direction interface	4; With integrated outputs
Number of pulse outputs  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  • Potential separation digital inputs  • Potential separation digital inputs  • between the channels, in groups of  Potential separation digital outputs  • Potential separation digital outputs  • Potential separation digital outputs  • Potential separation gigital outputs  • between the channels  • between the channels  • between the channels  • Interference immunity against discharge of static electricity  • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2  — Test voltage at air discharge  — Test voltage at contact discharge  6 kV	PID controller	Yes
Limit frequency (pulse)  Potential separation  Potential separation digital inputs  • Potential separation digital inputs  • Potential separation digital inputs  • between the channels, in groups of  Potential separation digital outputs  • Potential separation digital outputs  • Potential separation digital outputs  • between the channels  • between the channels  • between the channels, in groups of  Interference immunity against discharge of static electricity  • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2  — Test voltage at air discharge  8 kV  — Test voltage at contact discharge  6 kV	Number of alarm inputs	4
Potential separation  Potential separation digital inputs  • Potential separation digital inputs  • between the channels, in groups of  Potential separation digital outputs  • between the channels  • between the channels  • between the channels, in groups of  Interference immunity against discharge of static electricity  • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2  — Test voltage at air discharge  8 kV  — Test voltage at contact discharge  6 kV	Number of pulse outputs	4
Potential separation digital inputs  Potential separation digital inputs  between the channels, in groups of  Potential separation digital outputs  Potential separation digital inputs  Potential separation digital outputs  Potential se	Limit frequency (pulse)	100 kHz
<ul> <li>Potential separation digital inputs</li> <li>between the channels, in groups of</li> <li>Potential separation digital outputs</li> <li>Potential separation digital outputs</li> <li>Potential separation digital outputs</li> <li>between the channels</li> <li>between the channels, in groups of</li> <li>Interference immunity against discharge of static electricity</li> <li>Interference immunity against discharge of static electricity</li> <li>Interference immunity against discharge of static electricity</li> <li>Test voltage at air discharge</li> <li>6 kV</li> </ul>	Potential separation	
<ul> <li>between the channels, in groups of</li> <li>Potential separation digital outputs</li> <li>Potential separation digital outputs</li> <li>between the channels</li> <li>between the channels, in groups of</li> </ul> EMC Interference immunity against discharge of static electricity <ul> <li>Interference immunity against discharge of static electricity</li> <li>Interference immunity against discharge of static electricity acc. to IEC 61000-4-2</li> <li>Test voltage at air discharge</li> <li>KV</li> </ul> Test voltage at contact discharge <ul> <li>6 kV</li> </ul>	Potential separation digital inputs	
Potential separation digital outputs  Potential separation digital outputs  between the channels  between the channels, in groups of  Interference immunity against discharge of static electricity  Interference immunity against discharge of static electricity  Interference immunity against discharge of static electricity acc. to IEC 61000-4-2  — Test voltage at air discharge  Test voltage at contact discharge  6 kV	Potential separation digital inputs	No
Potential separation digital outputs  Potential separation digital outputs  between the channels  between the channels, in groups of  Interference immunity against discharge of static electricity  Interference immunity against discharge of static electricity  Interference immunity against discharge of static electricity acc. to IEC 61000-4-2  — Test voltage at air discharge  Test voltage at contact discharge  6 kV		1
Potential separation digital outputs  between the channels  between the channels, in groups of  Interference immunity against discharge of static electricity		
<ul> <li>between the channels</li> <li>between the channels, in groups of</li> <li>1</li> </ul> EMC Interference immunity against discharge of static electricity <ul> <li>Interference immunity against discharge of static electricity</li> <li>Interference immunity against discharge of static electricity acc. to IEC 61000-4-2</li> <li>Test voltage at air discharge</li> <li>KV</li> </ul> Test voltage at contact discharge <ul> <li>6 kV</li> </ul>		Yes
between the channels, in groups of  EMC  Interference immunity against discharge of static electricity      Interference immunity against discharge of static electricity      Interference immunity against discharge of static electricity acc. to IEC 61000-4-2      — Test voltage at air discharge      — Test voltage at contact discharge      6 kV		
Interference immunity against discharge of static electricity  ● Interference immunity against discharge of static electricity  ● Interference immunity against discharge of static electricity acc. to IEC 61000-4-2  — Test voltage at air discharge 8 kV  — Test voltage at contact discharge 6 kV		
Interference immunity against discharge of static electricity  • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2  — Test voltage at air discharge 8 kV  — Test voltage at contact discharge 6 kV		
● Interference immunity against discharge of static electricity acc. to IEC 61000-4-2  — Test voltage at air discharge 8 kV — Test voltage at contact discharge 6 kV		
— Test voltage at contact discharge 6 kV	Interference immunity against discharge of static	Yes
— Test voltage at contact discharge 6 kV	•	8 kV
	· · · · · · · · · · · · · · · · · · ·	
interiored initiality to cable-borne interiored	Interference immunity to cable-borne interference	
Interference immunity on supply lines acc. to IEC 61000- 4-4  Yes	• Interference immunity on supply lines acc. to IEC 61000-	Yes
• Interference immunity on signal cables acc. to IEC 61000- 4-4		Yes
Interference immunity against voltage surge	Interference immunity against voltage surge	
<ul> <li>Interference immunity on supply lines acc. to IEC 61000-</li> <li>4-5</li> </ul>	• Interference immunity on supply lines acc. to IEC 61000-	Yes

Interference immunity and interference in the Control of the Contr	and hy high fragues of alds
Interference immunity against conducted variable disturbance indu	, , ,
<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	
CE mark	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes Yes
KC approval  Marine approval	Yes
Ambient conditions	res
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	o.o m, avo umoo, m product package
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 horizontal or 45
	°C vertical
• horizontal installation, min.	-20 °C
horizontal installation, max.  A continuit installation min	60 °C
vertical installation, min.	-20 °C
vertical installation, max.  Ambient temperature during eterage/transportation.	50 °C
Ambient temperature during storage/transportation  • min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	70 0
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
<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	
Vibration resistance during operation acc. to IEC 60068-	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
2-6	Voc
Operation, tested according to IEC 60068-2-6  Shock testing	Yes
· · · · · · · · · · · · · · · · · · ·	Vac: IEC 68, Part 2, 27 half sine; strength of the shock 15 g (neak value)
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	
<ul> <li>User program protection/password protection</li> </ul>	Yes
<ul> <li>Copy protection</li> </ul>	Yes
Block protection	Yes

Yes
Yes
Yes
Yes
Yes
130 mm
100 mm
75 mm
500 g

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