6ES7217-1AG40-0XB0

Data sheet

SIMATIC S7-1200, CPU 1217C, compact CPU, DC/DC/DC, 2 PROFINET ports onboard I/O: 10 DI 24 V DC; 4 DI RS422/485; 6 DO 24 V DC; 0.5A; 4 DO RS422/485; 2 AI 0-10 V DC, 2 AO 0-20 mA Power supply: DC 20.4-28.8V DC, Program/data memory 150 KB



General information	
Product type designation	CPU 1217C DC/DC/DC
Firmware version	V4.5
Engineering with	
 Programming package 	STEP 7 V17 or higher
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Load voltage L+	
Rated value (DC)	24 V
 permissible range, lower limit (DC) 	20.4 V
 permissible range, upper limit (DC) 	28.8 V
Input current	
Current consumption (rated value)	600 mA; CPU only
Current consumption, max.	1 600 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	150 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; / Operation
CPU-blocks	
Number of blocks (total)	DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used
OB	
Number, max.	Limited only by RAM for code
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	14 kbyte
Flag	
• Size, max.	8 kbyte; Size of bit memory address area
Local data	
• per priority class, max.	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area	
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	
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
of which high-speed outputs Limitation of inductive shutdown voltage to	
	4; 100 kHz Pulse Train Output
Limitation of inductive shutdown voltage to	4; 100 kHz Pulse Train Output

Output voltage	
Output voltage	0.1 \tag{with 10 kOhm load}
• for signal "0", max.	0.1 V; with 10 kOhm load
• for signal "1", min.	20 V
Output current	0.5.4
• for signal "1" rated value	0.5 A
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	
of the pulse outputs, with resistive load, max.	100 kHz
Relay outputs	
Number of relay outputs	0
Cable length	
shielded, max.	500 m
unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
Input ranges	
• Voltage	Yes
Input ranges (rated values), voltages	
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	- TOOK OHING
-	100 m; twisted and chiefded
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
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	10 bit
	10 bit
Encoder	
Connectable encoders	V
• 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
RJ 45 (Ethernet)Number of ports	
 Number of ports 	2
Number of portsintegrated switch	
Number of ports integrated switch Protocols	2 Yes
 Number of ports integrated switch Protocols PROFINET IO Controller 	2 Yes
 Number of ports integrated switch Protocols PROFINET IO Controller PROFINET IO Device 	2 Yes Yes Yes
 Number of ports integrated switch Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication 	2 Yes Yes Yes Yes
 Number of ports integrated switch Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication 	2 Yes Yes Yes Yes Yes Yes Yes; Optionally also encrypted
 Number of ports integrated switch Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server 	2 Yes Yes Yes Yes Yes Yes; Optionally also encrypted Yes
 Number of ports integrated switch Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy 	2 Yes Yes Yes Yes Yes Yes; Optionally also encrypted
 Number of ports integrated switch Protocols PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server 	2 Yes Yes Yes Yes Yes Yes; Optionally also encrypted Yes

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.	10
 Number of connectable IO Devices, max. 	16
Number of connectable IO Devices for RT,	16
max.	
— of which in line, max.	16
 Activation/deactivation of IO Devices 	Yes
 Number of IO Devices that can be 	8
simultaneously activated/deactivated, max.	
— 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	devices and the quantity of configured user data.
Services	
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes
— Shared device	Yes
Number of IO Controllers with shared device,	2
max.	
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIsafe	No
PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
OPC UA	Yes; OPC UA Server
AS-Interface	Yes; CM 1243-2 required
Protocols (Ethernet)	
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	
Redundancy mode Media redundancy	
·	Yes; as MRP redundancy manager and/or MRP client
Media redundancy	Yes; as MRP redundancy manager and/or MRP client No
Media redundancy — MRP	
Media redundancy — MRP — MRPD	
Media redundancy — MRP — MRPD SIMATIC communication	No
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing	No
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing Open IE communication	No Yes
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing Open IE communication • TCP/IP	Yes Yes
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max.	Yes Yes 8 kbyte
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006)	Yes Yes 8 kbyte Yes
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max.	Yes Yes 8 kbyte Yes 8 kbyte
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max.	Yes Yes 8 kbyte Yes 8 kbyte Yes
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Data length, max.	Yes Yes 8 kbyte Yes 8 kbyte Yes
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Data length, max. Web server	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Data length, max. Web server • supported	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Data length, max. Web server • supported • User-defined websites	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Data length, max. Web server • supported • User-defined websites OPC UA	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Data length, max. Web server • supported • User-defined websites OPC UA • Runtime license required • OPC UA Server	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes Yes Yes Yes Yes Y
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Data length, max. Web server • supported • User-defined websites OPC UA • Runtime license required	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes Yes Yes Yes Yes Y
Media redundancy — MRP — MRPD SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Data length, max. Web server • supported • User-defined websites OPC UA • Runtime license required • OPC UA Server	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes Yes Yes Yes Yes Y

Number of subscriptions persosion, max.		
- Sampling interval, min.		
- Publishing interval, min. 200 ms - Number of server methods, max. 20 - Number of server methods, max. 1 000 - Number of protections, max. 20 - Number of monitored items, max. 200 - Number of server interfaces, max. 300 - Number of server interfaces, max. 300 - Server		
Number of server methods, max.	· -	
Number of monitored items, max. 1 000	_	200 ms
— Number of sorver interfaces, max. 2 2000	 Number of server methods, max. 	20
- Number of nodes for user-defined server interfaces, max. Further protocols • NOOBUS • NOOBUS **Ormunication functions / header **S**Communication functions / header **S**Tormunication • supported • overall PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S**Connections: 3 reserved / 14 max; Upen User 20 max; OPF Use Connections: 3 reserved / 14 max; Upen User 20 max; OPF Use Connections: 3 reserved / 14 max; Upen User 20 max; OPF Use Connections: 3 reserved / 10 max; Total Connections: 34 reserved / 84 max **Total commissioning functions **Status/control • Status/control variable • Variables • Variables • Variables • Forcing • Forcing • Forcing • Forcing • Forcing • Forcing • Number of configurable Traces • Memory size per trace, max; • Mumber of configurable Traces • Memory size per trace, max; * Status/control tell • RUNISTOP LED • REROR LED • REROR LED • Vas • Counting frequency, max • Counting frequency, max • Aumber of positioning aves via pulse-direction interface • Number of positioning aves via pulse-direction interface • Number of positioning aves via pulse-direction interface • Pic controller * Number of positioning aves via pulse-direction interface • Pic controller * Potential separation digital uputs • Evelveen the channels, in groups of • Evelveen the channels, in groups of • State Channels • Evelveen the channels • Evelveen the channels • Evel	 Number of monitored items, max. 	1 000
interfaces, max. Further protocols • MODBUS • MODBUS • MODBUS • Supported • supported • sa server • as client • User data per job, max. • Overall • Status/control variable • Ves • Status/control • Status/control • Status/control • Status/control • Forcing • Forcing • Forcing • Forcing • Present Traces • Number of configurable Traces • Counting Indication LED • RUMSTOP LED • REROR LED • Ves • LEROR LED • Ves • LAMINT LED • Ves • LAMINT LED • Ves • LAMINT LED • Ves • Laming frequency, max. • I Mirtz • Prequency measurement • Counting frequency, max. • I Mirtz • Prequency diales outputs • Limit frequency (pulse) • Potential separation digital inputs • Potential separation digital outputs • Potential separation digital out	 Number of server interfaces, max. 	2
### WODBUS *** MODBUS *** MODBUS *** MODBUS *** MODBUS *** Communication functions / header *** S7 communication *** Supported *** as server *** buser data per job, max. *** See online help (\$7 communication, user data size) *** Word and the properties of		2 000
MODBUS Communication functions / header \$7 communication • supported • sa server • as client • see server • as client • See online help (\$7 communication, user data size) Number of connections • overall PG Connections: 4 reserved / 4 max, HMI Connections: 12 reserved / 18 max; \$7 connections: 8 reserved / 14 max, Web Connections: 3 reserved / 10 max, Open User Connections: 8 reserved / 10 max, Open User Connections: 9 reserved / 10 reserved / 10 max, Open User Connections: 9 reserved / 10 reserv		
communication functions / header 37 communication • supported • sa server • as client • description of connections • overall PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 connections: 8 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 connections: 8 reserved / 14 max; Ves Connections: 2 reserved / 18 max; Den User Connections: 8 reserved / 14 max; Ves Connections: 2 reserved / 19 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64 max Test commissioning functions Status/control • Status/control variable • Status/control variable • Status/control variable • Present Traces • Number of configurable Traces • Present Pes Officurable • Present Traces • Number of configurable Traces • Number of configurable Traces • Number of configurable Traces • Present Pes Officurable • Present • Number of positioning axes via pulse-direction interface • PiD controlled • Counting frequency, max I MHz Frequency measurement • Officurable Separation Potential separation official outputs • Detential separation official outputs • Detential separation official outputs • Detential separation of	·	V
S7 communication • supported • as server • as client • User data per job, max. See online help (\$7 communication, user data size) Number of connections • overall •		Yes
supported as server as client ves as client ves as client ves ves as client ves ves client ves ves connections voverall PG Connections: 4 reserved / 4 max; HM Connections: 12 reserved / 18 max; 57 connections: 8 reserved / 14 max; Web Connections: 2 reserved / 18 max; 57 connections: 2 reserved / 18 max; 70 connections: 2 reserved / 18 max; 70 connections: 2 reserved / 18 max; 70 connections: 2 reserved / 10 max; 70 call Connections: 34 reserved / 18 max; 70 call Connection		
• as server • as client • User data per job. max. See online help (S7 communication, user data size) Number of connections • overall • overall • overall • PG Connections* a reserved / 4 max; HM Connections: 12 reserved / 18 max; 75 connections 2 reserved / 18 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 18 max; Web Connections: 2 reserved / 18 max; Popen User Connections: 8 reserved / 10 max; Total Connections: 34 reserved / 18 max Test commissioning functions Status/control • Status/control variable • Variables • Procing • Forcing • Forcing • Forcing • Forcing • Forcing • Forcing • Present • present • present • Pes • Number of configurable Traces • Memory size per trace, max • Interrupts/diagnostics/status information Diagnostics inflication LED • RUNISTOP LED • RUNISTOP LED • RUNISTOP LED • RUNISTOP LED • RAINT LED • MAINT LED • Present • Counting frequency, max • Interprated Functions Counter • Number of counters • Counting frequency, max • Number of positioning axes via pulse-direction interface • Number of positioning axes via pulse-direction interface • Ves Number of positioning axes via pulse-direction interface • Via Proceedings of the positioning axes via pulse-direction interface • Via Proceedings of the positioning axes via pulse-direction interface • Potential separation digital inputs • Potential separation digital outputs • Potential separation digital outputs • Determine separation digital outputs		
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Number of connections • overall • overall PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; HMI Connections: 20 reserved / 18 max; S7 Connections: 3 reserved / 19 max; Total Connections: 34 reserved / 64 max Test commissioning functions Status/control • Status/control variable • Variables Forcing • Forcing • Forcing 1 Yes 1 Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing • Forcing 1 Yes 1 Yes 1 Number of configurable Traces • Number of positions information Diagnostics indication LED • RUNNSTOP LED • RENOR LED • RENOR LED • MAINT LED Treaces • Ocunting frequency, max. Integrated Functions Counter • Ocuning frequency, max. 1 MHz Frequency measurement • Yes controlled positioning Yes Number of positioning axes via pulse-direction interface PID controller Number of pulse outputs 4 Number of pulse outputs 4 Number of pulse outputs 4 Number of pulse outputs • Aumber of pulse outputs • Potential separation digital inputs • Detential separation digital inputs • Detential separation digital outputs • Detential separ	• as client	Yes
PG Connections: 4 reserved / 4 max; Mill Connections: 12 reserved / 18 max; 75 connections: 3 reserved / 14 max; Open User Connections: 3 reserved / 14 max; Open User Connections: 3 reserved / 14 max; Open User Connections: 3 reserved / 10 max; Total Connections: 34 reserved / 64 max Test commissioning functions Status/control Status/control variable Status/control variable Status/control variable Percent		See online help (S7 communication, user data size)
18 max; S7 Connections: 8 reserved / 10 max; For Connections: 2 reserved / 30 max; OPC UN Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 8 max	Number of connections	
Status/control Status/control variable Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Forcing Forcing Forcing Forcing Forcing Piagnostic buffer present Ves Traces Number of configurable Traces Memory size per trace, max. S12 kbyte Interrupts/diagnostics/status information Diagnostics indication LED RUN/STOP LED RUN/STOP LED REROR LED REROR LED ROUNISTOP LED ROU	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 variable Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Forcing Forcing Yes Diagnostic buffer present Yes Traces Number of configurable Traces Nemory size per trace, max. Interrupts/diagnostics/status information Diagnostics indication LED RUN/STOP LED RUN/STOP LED MAINT LED Pes RROR LED Number of counters Counter Number of counters Counter Number of counters Counting frequency, max. 1 MHz Frequency measurement Yes Number of position-controlled positioning axes, max. 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 pulse outputs Limit frequency (pulse) 1 MHz Potential separation Potential separation digital inputs Potential separation digital inputs Potential separation digital outputs Potential sepa	Test commissioning functions	
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Forcing Forcin	Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Diagnostic buffer • present Praces • Number of configurable Traces • Number of configurable Trace, max. 512 kbyte Interrupts/diagnostics/status Information Diagnostics indication LED • RUNXTOP LED • RUNXTOP LED • REROR LED • Yes • MAINT LED Tounter • Number of counters • Number of counters • Counter • Number of counters • Counting frequency, max. 1 MHz Frequency measurement Yes Controlled positioniong Yes Number of position-controlled positioning axes, max. 8 Number of position-controlled positioning axes, max. 8 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 Potential separation digital inputs • Potential separation digital inputs • Potential separation digital outputs • Potential separation digital outputs	Forcing	
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Memory size per trace, max. Interrupts/diagnostics/status information Diagnostics indication LED RUN/STOP LED REROR LED 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 position-controlled positioning axes via pulse-direction interface PID controller Number of pluse outputs Almiter fequency (pulse) Potential separation digital inputs Potential separation digital outputs Potential separation d	Traces	
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Interrupts/diagnostics/status information Diagnostics indication LED • RUN/STOP LED • ERROR LED • MAINT LED • MAINT LED Integrated Functions Counter • Number of counters • Counting frequency, max. Frequency measurement controlled positioning Yes Number of position-controlled positioning axes, max. Number of positioning axes via pulse-direction interface PID controller Number of alarm inputs 4 Number of pulse outputs Limit frequency (pulse) Potential separation Potential separation digital inputs • Potential separation digital outputs		512 kbyte
Diagnostics indication LED RUN/STOP LED RUN/STOP LED REROR LED REROR LED RINIT LED REROR LED RE	Interrupts/diagnostics/status information	
• RUN/STOP LED • ERROR LED • MAINT LED Yes Integrated Functions Counter • 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 PID controller Yes Number of alarm inputs 4 Number of pulse outputs 4 Limit frequency (pulse) 1 MHz Potential separation Potential separation digital inputs • between the channels, in groups of • Detential separation digital outputs • Potential separation digital outputs • Detential separation digital outputs		
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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		
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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	. ,	
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EMC		1
	EMC	

Interference immunity against discharge of static electricity	
 Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 	Yes
 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 61000-4-4 	Yes
Interference immunity against voltage surge	
 Interference immunity on supply lines acc. to IEC 61000-4-5 	Yes
Interference immunity against conducted variable disturbance	ce induced by high-frequency fields
 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
	Yes
FM approval	
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
Ambient conditions	
Free fall	
	0.3 m; five times, in product package
Free fall	0.3 m; five times, in product package
Free fall • Fall height, max.	0.3 m; five times, in product package -20 °C
Free fall • Fall height, max. Ambient temperature during operation	
Free fall • Fall height, max. Ambient temperature during operation • min.	-20 °C 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
Free fall • Fall height, max. Ambient temperature during operation • min. • max.	-20 °C 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
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min.	-20 °C 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 -20 °C
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max.	-20 °C 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 -20 °C 60 °C
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min.	-20 °C 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 -20 °C 60 °C -20 °C
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max.	-20 °C 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 -20 °C 60 °C -20 °C
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation	-20 °C 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 -20 °C 60 °C -20 °C 50 °C
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. min. horizontal installation, max. min. min.	-20 °C 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 -20 °C 60 °C -20 °C 50 °C
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. min. max. Ambient temperature during storage/transportation min. max.	-20 °C 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 -20 °C 60 °C -20 °C 50 °C
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. max. Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13	-20 °C 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 -20 °C 60 °C -20 °C 50 °C
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. min. max. Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Operation, min.	-20 °C 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 -20 °C 60 °C -20 °C 50 °C -40 °C 795 hPa
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. vertical installation, max. Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Operation, min. Operation, max.	-20 °C 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 -20 °C 60 °C -20 °C 50 °C -40 °C 795 hPa 1 080 hPa
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. max. Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Operation, min. Operation, max. Storage/transport, min.	-20 °C 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 -20 °C 60 °C -20 °C 50 °C -40 °C 70 °C 795 hPa 1 080 hPa 660 hPa
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. min. vertical installation, max. Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Operation, min. Operation, max. Storage/transport, min. Storage/transport, min.	-20 °C 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 -20 °C 60 °C -20 °C 50 °C -40 °C 70 °C 795 hPa 1 080 hPa 660 hPa
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Operation, min. Operation, max. Storage/transport, min. Storage/transport, min. Storage/transport, max. Altitude during operation relating to sea level Installation altitude, min.	-20 °C 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 -20 °C 60 °C -20 °C 50 °C -40 °C 795 hPa 1 080 hPa 1 080 hPa 1 080 hPa
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. vertical installation, max. Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Operation, min. Operation, max. Storage/transport, min. Storage/transport, min. Storage/transport, max. Altitude during operation relating to sea level Installation altitude, min. Installation altitude, max.	-20 °C 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 -20 °C 60 °C -20 °C 50 °C -40 °C 795 hPa 1 080 hPa 1 080 hPa 1 080 hPa
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. vertical installation, max. Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Operation, min. Operation, max. Storage/transport, min. Storage/transport, min. Storage/transport, max. Altitude during operation relating to sea level Installation altitude, min. Installation altitude, max. Relative humidity	-20 °C 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 -20 °C 60 °C -20 °C 50 °C -40 °C 70 °C 795 hPa 1 080 hPa 660 hPa 1 080 hPa 1 080 hPa 1 080 hPa
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Operation, min. Operation, max. Storage/transport, min. Storage/transport, min. Storage/transport, max. Altitude during operation relating to sea level Installation altitude, min. Installation altitude, max. Relative humidity Operation, max.	-20 °C 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 -20 °C 60 °C -20 °C 50 °C -40 °C 795 hPa 1 080 hPa 1 080 hPa 1 080 hPa
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. vertical installation, max. Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Operation, min. Operation, max. Storage/transport, min. Storage/transport, min. Storage/transport, max. Altitude during operation relating to sea level Installation altitude, min. Installation altitude, max. Relative humidity	-20 °C 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 -20 °C 60 °C -20 °C 50 °C -40 °C 70 °C 795 hPa 1 080 hPa 660 hPa 1 080 hPa 1 080 hPa 1 080 hPa
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Operation, min. Operation, max. Storage/transport, min. Storage/transport, min. Storage/transport, max. Altitude during operation relating to sea level Installation altitude, min. Installation altitude, max. Relative humidity Operation, max. Vibrations Vibrations Vibration resistance during operation acc. to IEC 60068-2-6	-20 °C 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 -20 °C 60 °C -20 °C 50 °C -40 °C 795 hPa 1 080 m; Restrictions for installation altitudes > 2 000 m, see manual 95 %; no condensation
Free fall Fall height, max. Ambient temperature during operation min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. Ambient temperature during storage/transportation min. max. Air pressure acc. to IEC 60068-2-13 Operation, min. Operation, max. Storage/transport, min. Storage/transport, min. Storage/transport, max. Altitude during operation relating to sea level Installation altitude, min. Installation altitude, max. Relative humidity Operation, max. Vibrations Vibrations	-20 °C 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 -20 °C 60 °C -20 °C 50 °C -40 °C 795 hPa 1 080 m; Restrictions for installation altitudes > 2 000 m, see manual

Pollutant concentrations	
SO2 at RH < 60% without condensation	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
Know-how protection	
 User program protection/password protection 	Yes
 Copy protection 	Yes
Block protection	Yes
Access protection	
 protection of confidential configuration data 	Yes
 Protection level: Write protection 	Yes
 Protection level: Read/write protection 	Yes
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	
adjustable	Yes
Dimensions	
Width	150 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	530 g
	-

4/1/2022

last modified: