

CPU 1214C

Overview

- Controller for intro to S7 with flexible expansion options
- Expandable by:
 - 1 signal board (SB), battery board (BB) or communication board (CB)
 - 8 signal modules (SM)
 - Max. 3 communications modules (CM)

Design

The compact CPU 1214C has:

- 3 device versions with different power supply and control voltages.
- Integrated power supply either as wide-range AC or DC power supply (85 ... 264 V AC or 24 V DC)
- Integrated 24 V encoder/load current supply:
For direct connection of sensors and encoders. With a 400 mA output current, it can also be used as load power supply.
- 14 integrated digital inputs 24 V DC (current sinking/sourcing input (IEC type 1 current sinking)).
- 10 integrated digital outputs, either 24 V DC or relay.
- 2 integrated analog inputs 0 ... 10 V.
- 2 pulse outputs (PTO) with a frequency of up to 100 kHz.
- Pulse-width modulated outputs (PWM) with a frequency of up to 100 kHz.
- Integrated Ethernet interface (TCP/IP native, ISO-on-TCP).
- 6 fast counters (3 with max. 100 kHz; 3 with max. 30 kHz), with parameterizable enable and reset inputs, can be used simultaneously as up and down counters with 2 separate inputs or for connecting incremental encoders.
- Expansion by additional communication interfaces, e.g. RS485 or RS232.
- Expansion by analog or digital signals directly on the CPU via signal board (with retention of CPU mounting dimensions).
- Expansion by a wide range of analog and digital input and output signals via signal modules.
- Optional memory expansion (SIMATIC Memory Card).
- PID controller with auto-tuning functionality.
- Integral real-time clock.
- Interrupt inputs:
For extremely fast response to rising or falling edges of process signals.
- Removable terminals on all modules.
- Simulator (optional):
For simulating the integrated inputs and for testing the user program.

Device versions

Option	Supply voltage	Input voltage DI	Output voltage DO	Output current
• DC/DC/DC	24 V DC	24 V DC	24 V DC	0.5 A, transistor
• DC/DC/relay	24 V DC	24 V DC	5 ... 30 V DC / 5 ... 250 V AC	2 A; 30 W DC / 200 W AC
• AC/DC/relay	85 ... 264 V AC	24 V DC	5 ... 30 V DC / 5 ... 250 V AC	2 A; 30 W DC / 200 W AC

Function

- Comprehensive instruction set:
A wide range of operations facilitates programming:
 - Basic operations such as binary logic operations, result allocation, save, count, create times, load, transfer, compare, shift, rotate, create complement, call subprogram (with local variables)
 - Integral communication commands (e.g. USS protocol, Modbus RTU, S7 communication "T-Send/T-Receive" or Freeport)
 - User-friendly functions such as pulse-width modulation, pulse sequence function, arithmetic functions, floating point arithmetic, PID closed-loop control, jump functions, loop functions and code conversions
 - Mathematical functions, e.g. SIN, COS, TAN, LN, EXP
- Counting:
User-friendly counting functions in conjunction with the integrated counters and special commands for high-speed counters open up new application areas for the user.
- Interrupt processing:
 - Edge-triggered interrupts (activated by rising or falling edges of process signals on interrupt inputs) support a rapid response to process events.
 - Time-triggered interrupts.

- Counter interrupts can be triggered when a setpoint is reached or when the direction of counting changes.
- Communication interrupts allow the rapid and easy exchange of information with peripheral devices such as printers or bar code readers.
- Password protection
- Test and diagnostics functions:
Easy-to-use functions support testing and diagnostics, e.g. online/offline diagnostics.
- "Forcing" of inputs and outputs during testing and diagnostics:
Inputs and outputs can be set independently of cycle and thus permanently, for example, to test the user program.
- Motion Control in accordance with PLCopen for simple movements.
- Library functionality

Programming

The STEP 7 Basic programming package permits complete programming of all S7-1200 Controllers and the associated I/O.

Technical specifications

Article number	6ES7214-1BG40-0XB0 CPU 1214C, AC/DC/Relay, 14DI/10DO/2AI	6ES7214-1AG40-0XB0 CPU 1214C, DC/DC/DC, 14DI/10DO/2AI	6ES7214-1HG40-0XB0 CPU 1214C, DC/DC/Relay, 14DI/10DO/2AI
General information			
Product type designation	CPU 1214C AC/DC/relay	CPU 1214C DC/DC/DC	CPU 1214C DC/DC/relay
Firmware version	V4.5	V4.5	V4.5
Engineering with			
• Programming package	STEP 7 V17 or higher	STEP 7 V17 or higher	STEP 7 V17 or higher
Supply voltage			
Rated value (DC)			
• 24 V DC		Yes	Yes
permissible range, lower limit (DC)		20.4 V	20.4 V
permissible range, upper limit (DC)		28.8 V	28.8 V
Rated value (AC)			
• 120 V AC	Yes		
• 230 V AC	Yes		
permissible range, lower limit (AC)	85 V		
permissible range, upper limit (AC)	264 V		
Reverse polarity protection		Yes	Yes
Line frequency			
• permissible range, lower limit	47 Hz		
• permissible range, upper limit	63 Hz		
Load voltage L+			
• Rated value (DC)		24 V	24 V
• permissible range, lower limit (DC)		20.4 V	20.4 V
• permissible range, upper limit (DC)		28.8 V	28.8 V
Input current			
Current consumption (rated value)	100 mA at 120 V AC; 50 mA at 240 V AC	500 mA; CPU only	500 mA; CPU only
Current consumption, max.	300 mA at 120 V AC; 150 mA at 240 V AC	1 500 mA; CPU with all expansion modules	1 500 mA; CPU with all expansion modules
Inrush current, max.	20 A; at 264 V	12 A; at 28.8 V	12 A; at 28.8 V
I ² t	0.8 A ² ·s	0.5 A ² ·s	0.8 A ² ·s
Output current			
for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM	1 600 mA; Max. 5 V DC for SM and CM	1 600 mA; Max. 5 V DC for SM and CM
Encoder supply			
24 V encoder supply			
• 24 V	20.4 to 28.8V	L+ minus 4 V DC min.	L+ minus 4 V DC min.
Power loss			
Power loss, typ.	14 W	12 W	12 W
Memory			
Work memory			
• integrated	100 kbyte	100 kbyte	100 kbyte
• expandable	No	No	No
Load memory			
• integrated	4 Mbyte	4 Mbyte	4 Mbyte
• Plug-in (SIMATIC Memory Card), max.	with SIMATIC memory card	with SIMATIC memory card	with SIMATIC memory card
Backup			
• present	Yes	Yes	Yes
• maintenance-free	Yes	Yes	Yes
• without battery	Yes	Yes	Yes
CPU processing times			
for bit operations, typ.	0.08 µs; / instruction	0.08 µs; / instruction	0.08 µs; / instruction
for word operations, typ.	1.7 µs; / instruction	1.7 µs; / instruction	1.7 µs; / instruction
for floating point arithmetic, typ.	2.3 µs; / instruction	2.3 µs; / instruction	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	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	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

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• Number, max.	Limited only by RAM for code	Limited only by RAM for code	Limited only by RAM for code
Data areas and their retentivity			
Retentive data area (incl. timers, counters, flags), max.	14 kbyte	14 kbyte	14 kbyte
Flag			
• Size, max.	8 kbyte; Size of bit memory address area	8 kbyte; Size of bit memory address area	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	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area			
Process image			
• Inputs, adjustable	1 kbyte	1 kbyte	1 kbyte
• Outputs, adjustable	1 kbyte	1 kbyte	1 kbyte
Hardware configuration			
Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules	3 comm. modules, 1 signal board, 8 signal modules	3 comm. modules, 1 signal board, 8 signal modules
Time of day			
Clock			
• Hardware clock (real-time)	Yes	Yes	Yes
• Backup time	480 h; Typical	480 h; Typical	480 h; Typical
• Deviation per day, max.	±60 s/month at 25 °C	±60 s/month at 25 °C	±60 s/month at 25 °C
Digital inputs			
Number of digital inputs	14; Integrated	14; Integrated	14; Integrated
• of which inputs usable for technological functions	6; HSC (High Speed Counting)	6; HSC (High Speed Counting)	6; HSC (High Speed Counting)
Source/sink input	Yes	Yes	Yes
Number of simultaneously controllable inputs			
all mounting positions			
— up to 40 °C, max.	14	14	14
Input voltage			
• Rated value (DC)	24 V	24 V	24 V
• for signal "0"	5 V DC at 1 mA	5 V DC at 1 mA	5 V DC at 1 mA
• for signal "1"	15 V DC at 2.5 mA	15 V DC at 2.5 mA	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	0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four	0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four
— at "0" to "1", min.	0.2 ms	0.2 ms	0.2 ms
— at "0" to "1", max.	12.8 ms	12.8 ms	12.8 ms
for interrupt inputs			
— parameterizable	Yes	Yes	Yes
for technological functions			
— parameterizable	Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz	Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz	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	500 m; 50 m for technological functions	500 m; 50 m for technological functions
• unshielded, max.	300 m; for technological functions: No	300 m; for technological functions: No	300 m; for technological functions: No
Digital outputs			
Number of digital outputs	10; Relays	10	10; Relays
• 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			
• with resistive load, max.	2 A	0.5 A	2 A
• on lamp load, max.	30 W with DC, 200 W with AC	5 W	30 W with DC, 200 W with AC
Output voltage			
• for signal "0", max.		0.1 V; with 10 kOhm load	
• for signal "1", min.		20 V	
Output current			
• 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.	10 ms; max.	1 µs	10 ms; max.
• "1" to "0", max.	10 ms; max.	5 µs	10 ms; max.
Switching frequency			
• of the pulse outputs, with resistive load, max.		100 kHz	
Relay outputs			
• Number of relay outputs	10	0	10
• Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100 000		mechanically 10 million, at rated load voltage 100 000
Cable length			

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• shielded, max.	500 m	500 m	500 m
• unshielded, max.	150 m	150 m	150 m
Analog inputs			
Number of analog inputs	2	2	2
Input ranges			
• Voltage	Yes	Yes	Yes
Input ranges (rated values), voltages			
• 0 to +10 V	Yes	Yes	Yes
— Input resistance (0 to 10 V)	≥100k ohms	≥100k ohms	≥100k ohms
Cable length			
• shielded, max.	100 m; twisted and shielded	100 m; twisted and shielded	100 m; twisted and shielded
Analog outputs			
Number of analog outputs	0	0	0
Analog value generation for the inputs			
Integration and conversion time/resolution per channel			
• Resolution with overrange (bit including sign), max.	10 bit	10 bit	10 bit
• Integration time, parameterizable	Yes	Yes	Yes
• Conversion time (per channel)	625 µs	625 µs	625 µs
Encoder			
Connectable encoders			
• 2-wire sensor	Yes	Yes	Yes
1. Interface			
Interface type	PROFINET	PROFINET	PROFINET
Isolated	Yes	Yes	Yes
automatic detection of transmission rate	Yes	Yes	Yes
Autonegotiation	Yes	Yes	Yes
Autocrossing	Yes	Yes	Yes
Interface types			
• RJ 45 (Ethernet)	Yes	Yes	Yes
• Number of ports	1	1	1
• integrated switch	No	No	No
Protocols			
• PROFINET IO Controller	Yes	Yes	Yes
• PROFINET IO Device	Yes	Yes	Yes
• SIMATIC communication	Yes	Yes	Yes
• Open IE communication	Yes; Optionally also encrypted	Yes; Optionally also encrypted	Yes; Optionally also encrypted
• Web server	Yes	Yes	Yes
• Media redundancy	No	No	No
PROFINET IO Controller			
• Transmission rate, max.	100 Mbit/s	100 Mbit/s	100 Mbit/s
Services			
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected	Yes; encryption with TLS V1.3 pre-selected	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No	No	No
— IRT	No	No	No
— PROFIenergy	No	No	No
— Prioritized startup	Yes	Yes	Yes
— Number of IO devices with prioritized startup, max.	16	16	16
— Number of connectable IO Devices, max.	16	16	16
— Number of connectable IO Devices for RT, max.	16	16	16
— of which in line, max.	16	16	16
— Activation/deactivation of IO Devices	Yes	Yes	Yes
— Number of IO Devices that can be simultaneously activated/deactivated, max.	8	8	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.	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.	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	Yes; encryption with TLS V1.3 pre-selected	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No	No	No
— IRT	No	No	No
— PROFIenergy	Yes	Yes	Yes

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— Shared device	Yes	Yes	Yes
— Number of IO Controllers with shared device, max.	2	2	2
Protocols			
Supports protocol for PROFINET IO	Yes	Yes	Yes
PROFIsafe	No	No	No
PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
OPC UA	Yes; OPC UA Server	Yes; OPC UA Server	Yes; OPC UA Server
AS-Interface	Yes; CM 1243-2 required	Yes; CM 1243-2 required	Yes; CM 1243-2 required
Protocols (Ethernet)			
• TCP/IP	Yes	Yes	Yes
• DHCP	No	No	No
• SNMP	Yes	Yes	Yes
• DCP	Yes	Yes	Yes
• LLDP	Yes	Yes	Yes
Redundancy mode			
Media redundancy			
— MRP	No	No	No
— MRPD	No	No	No
SIMATIC communication			
• S7 routing	Yes	Yes	Yes
Open IE communication			
• TCP/IP	Yes	Yes	Yes
— Data length, max.	8 kbyte	8 kbyte	8 kbyte
• ISO-on-TCP (RFC1006)	Yes	Yes	Yes
— Data length, max.	8 kbyte	8 kbyte	8 kbyte
• UDP	Yes	Yes	Yes
— Data length, max.	1 472 byte	1 472 byte	1 472 byte
Web server			
• supported	Yes	Yes	Yes
• User-defined websites	Yes	Yes	Yes
OPC UA			
• Runtime license required	Yes; "Basic" license required	Yes; "Basic" license required	Yes; "Basic" license required
• OPC UA Server	Yes; data access (read, write, subscribe), method call, runtime license required	Yes; data access (read, write, subscribe), method call, runtime license required	Yes; data access (read, write, subscribe), method call, runtime license required
— Application authentication	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password	"anonymous" or by user name & password	"anonymous" or by user name & password
— Number of sessions, max.	10	10	10
— Number of subscriptions per session, max.	5	5	5
— Sampling interval, min.	100 ms	100 ms	100 ms
— Publishing interval, min.	200 ms	200 ms	200 ms
— Number of server methods, max.	20	20	20
— number of monitored items, recommended max.	1 000	1 000	1 000
— Number of server interfaces, max.	2	2	2
— Number of nodes for user-defined server interfaces, max.	2 000	2 000	2 000
Further protocols			
• MODBUS	Yes	Yes	Yes
communication functions / header			
S7 communication			
• supported	Yes	Yes	Yes
• as server	Yes	Yes	Yes
• as client	Yes	Yes	Yes
• User data per job, max.	See online help (S7 communication, user data size)	See online help (S7 communication, user data size)	See online help (S7 communication, user data size)
Number of connections			
• overall	PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64 max	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	PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64 max
Test commissioning functions			

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Status/control			
• Status/control variable	Yes	Yes	Yes
• Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing			
• Forcing	Yes	Yes	Yes
Diagnostic buffer			
• present	Yes	Yes	Yes
Traces			
• Number of configurable Traces	2	2	2
• Memory size per trace, max.	512 kbyte	512 kbyte	512 kbyte
Interrupts/diagnostics/status information			
Diagnostics indication LED			
• RUN/STOP LED	Yes	Yes	Yes
• ERROR LED	Yes	Yes	Yes
• MAINT LED	Yes	Yes	Yes
Integrated Functions			
Frequency measurement	Yes	Yes	Yes
controlled positioning	Yes	Yes	Yes
Number of position-controlled positioning axes, max.	8	8	8
Number of positioning axes via pulse-direction interface	Up to 4 with SB 1222	4; With integrated outputs	Up to 4 with SB 1222
PID controller	Yes	Yes	Yes
Number of alarm inputs	4	4	4
Number of pulse outputs		4	
Limit frequency (pulse)		100 kHz	
Potential separation			
Potential separation digital inputs			
• Potential separation digital inputs	500V AC for 1 minute	No	500V AC for 1 minute
• between the channels, in groups of	1	1	1
Potential separation digital outputs			
• Potential separation digital outputs	Relays	Yes	Relays
• between the channels	No	No	No
• between the channels, in groups of	2	1	2
EMC			
Interference immunity against discharge of static electricity			
• Interference immunity against discharge of static electricity acc. to IEC 61000-4-2	Yes	Yes	Yes
— Test voltage at air discharge	8 kV	8 kV	8 kV
— Test voltage at contact discharge	6 kV	6 kV	6 kV
Interference immunity to cable-borne interference			
• Interference immunity on supply lines acc. to IEC 61000-4-4	Yes	Yes	Yes
• Interference immunity on signal cables acc. to IEC 61000-4-4	Yes	Yes	Yes
Interference immunity against voltage surge			
• Interference immunity on supply lines acc. to IEC 61000-4-5	Yes	Yes	Yes
Interference immunity against conducted variable disturbance induced by high-frequency fields			
• Interference immunity against high-frequency radiation acc. to IEC 61000-4-6	Yes	Yes	Yes
Emission of radio interference acc. to EN 55 011			
• Limit class A, for use in industrial areas	Yes; Group 1	Yes; Group 1	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	Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011	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	IP20	IP20
Standards, approvals, certificates			
CE mark	Yes	Yes	Yes
UL approval	Yes	Yes	Yes
cULus	Yes	Yes	Yes
FM approval	Yes	Yes	Yes
RCM (formerly C-TICK)	Yes	Yes	Yes
KC approval	Yes	Yes	Yes
Marine approval	Yes	Yes	Yes
Ambient conditions			
Free fall			

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• Fall height, max.	0.3 m; five times, in product package	0.3 m; five times, in product package	0.3 m; five times, in product package
Ambient temperature during operation			
• min.	-20 °C	-20 °C	-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	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	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	-20 °C	-20 °C
• horizontal installation, max.	60 °C	60 °C	60 °C
• vertical installation, min.	-20 °C	-20 °C	-20 °C
• vertical installation, max.	50 °C	50 °C	50 °C
Ambient temperature during storage/transportation			
• min.	-40 °C	-40 °C	-40 °C
• max.	70 °C	70 °C	70 °C
Air pressure acc. to IEC 60068-2-13			
• Operation, min.	795 hPa	795 hPa	795 hPa
• Operation, max.	1 080 hPa	1 080 hPa	1 080 hPa
• Storage/transport, min.	660 hPa	660 hPa	660 hPa
• Storage/transport, max.	1 080 hPa	1 080 hPa	1 080 hPa
Altitude during operation relating to sea level			
• Installation altitude, min.	-1 000 m	-1 000 m	-1 000 m
• Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity			
• Operation, max.	95 %; no condensation	95 %; no condensation	95 %; no condensation
Vibrations			
• Vibration resistance during operation acc. to IEC 60068-2-6	2 g (m/s ²) wall mounting, 1 g (m/s ²) DIN rail	2 g (m/s ²) wall mounting, 1 g (m/s ²) DIN rail	2 g (m/s ²) wall mounting, 1 g (m/s ²) DIN rail
• Operation, tested according to IEC 60068-2-6	Yes	Yes	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	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
Pollutant concentrations			
• SO ₂ at RH < 60% without condensation	S0 ₂ : < 0.5 ppm; H ₂ S: < 0.1 ppm; RH < 60% condensation-free	S0 ₂ : < 0.5 ppm; H ₂ S: < 0.1 ppm; RH < 60% condensation-free	S0 ₂ : < 0.5 ppm; H ₂ S: < 0.1 ppm; RH < 60% condensation-free
configuration / header			
configuration / programming / header			
Programming language			
— LAD	Yes	Yes	Yes
— FBD	Yes	Yes	Yes
— SCL	Yes	Yes	Yes
Know-how protection			
• User program protection/password protection	Yes	Yes	Yes
• Copy protection	Yes	Yes	Yes
• Block protection	Yes	Yes	Yes
Access protection			
• protection of confidential configuration data	Yes	Yes	Yes
• Protection level: Write protection	Yes	Yes	Yes
• Protection level: Read/write protection	Yes	Yes	Yes
• Protection level: Complete protection	Yes	Yes	Yes
programming / cycle time monitoring / header			
• adjustable	Yes	Yes	Yes
Dimensions			
Width	110 mm	110 mm	110 mm
Height	100 mm	100 mm	100 mm
Depth	75 mm	75 mm	75 mm
Weights			
Weight, approx.	455 g	415 g	435 g