SIEMENS

Data sheet

6ES7212-1BE40-0XB0



SIMATIC S7-1200, CPU 1212C, compact CPU, AC/DC/relay, onboard I/O: 8 DI 24 V DC; 6 DO relay 2 A; 2 AI 0-10 V DC, Power supply: AC 85-264 V AC at 47-63 Hz, Program/data memory 75 KB

General information	
Product type designation	CPU 1212C AC/DC/relay
Firmware version	V4.5
Engineering with	
 Programming package 	STEP 7 V17 or higher
Supply voltage	
Rated value (AC)	
• 120 V AC	Yes
• 230 V AC	Yes
permissible range, lower limit (AC)	85 V
permissible range, upper limit (AC)	264 V
Line frequency	
 permissible range, lower limit 	47 Hz
 permissible range, upper limit 	63 Hz
Input current	
Current consumption (rated value)	80 mA at 120 V AC; 40 mA at 240 V AC
Current consumption, max.	240 mA at 120 V AC; 120 mA at 240 V AC
Inrush current, max.	20 A; at 264 V
² t	0.8 A ² ·s
Output current	
for backplane bus (5 V DC), max.	1 000 mA; Max. 5 V DC for SM and CM
Encoder supply	
24 V encoder supply	
• 24 V	20.4 to 28.8V
Power loss	
Power loss, typ.	11 W
Memory	
Work memory	
 integrated 	75 kbyte
expandable	No
Load memory	
• integrated	2 Mbyte
 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
Backup	
• present	Yes
 maintenance-free 	Yes
without battery	Yes

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	
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.	4 kbyte; Size of bit memory address area
Local data	
 per priority class, max. 	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area	
Process image	
 Inputs, adjustable 	1 kbyte
 Outputs, adjustable 	1 kbyte
Hardware configuration	
Number of modules per system, max.	3 comm. modules, 1 signal board, 2 signal modules
Time of day	· · ·
Clock	
Hardware clock (real-time)	Yes
Backup time	480 h; Typical
Deviation per day, max.	±60 s/month at 25 °C
Digital inputs	
Digital liputs	
Number of disited insule	O: Interreted
Number of digital inputs	8; Integrated
of which inputs usable for technological functions	6; HSC (High Speed Counting)
of which inputs usable for technological functions Source/sink input	-
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Output delay with resistive load	
• "0" to "1", max.	10 ms; max.
• "1" to "0", max.	10 ms; max.
Relay outputs	
 Number of relay outputs 	6
 Number of operating cycles, max. 	mechanically 10 million, at rated load voltage 100 000
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	
• shielded, max.	100 m; twisted and shielded
Analog outputs	
	0
Number of analog outputs	0
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
 Resolution with overrange (bit including sign), max. 	10 bit
 Integration time, parameterizable 	Yes
 Conversion time (per channel) 	625 µs
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
1. Interface	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autoregoliation	Yes
Interface types	Yes
RJ 45 (Ethernet)	1
Number of ports	
integrated switch	No
Protocols	No.
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
 SIMATIC communication 	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
 Media redundancy 	
	No
PROFINET IO Controller	
,	
PROFINET IO Controller	No
PROFINET IO Controller • Transmission rate, max.	No
PROFINET IO Controller • Transmission rate, max. Services	No 100 Mbit/s
PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication	No 100 Mbit/s Yes; encryption with TLS V1.3 pre-selected
PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode	No 100 Mbit/s Yes; encryption with TLS V1.3 pre-selected No
PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode — IRT	No 100 Mbit/s Yes; encryption with TLS V1.3 pre-selected No No
PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode — IRT — PROFlenergy — Prioritized startup	No 100 Mbit/s Yes; encryption with TLS V1.3 pre-selected No No No
PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode — IRT — PROFlenergy	No 100 Mbit/s Yes; encryption with TLS V1.3 pre-selected No No No Yes
PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode — IRT — PROFlenergy — Prioritized startup — Number of IO devices with prioritized startup,	No 100 Mbit/s Yes; encryption with TLS V1.3 pre-selected No No No Yes
PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode — IRT — PROFlenergy — Prioritized startup — Number of IO devices with prioritized startup, max.	No 100 Mbit/s Yes; encryption with TLS V1.3 pre-selected No No No Yes 16

— of which in line, max.	16
 Activation/deactivation of IO Devices 	Yes
 Number of IO Devices that can be 	8
simultaneously activated/deactivated, max.	
— 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 door data.
Services	
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
	Yes
— PROFlenergy	
— Shared device	Yes
 — Number of IO Controllers with shared device, max. 	2
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIBUS	
	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
	Yes; OPC UA Server
AS-Interface	Yes; CM 1243-2 required
Protocols (Ethernet)	
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	
Media redundancy	
— MRP	No
— MRPD	No
SIMATIC communication	
S7 routing	Yes
Open IE communication	
• 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	
supported	Yes
User-defined websites	Yes
OPC UA	
Runtime license required	Yes; "Basic" license required
OPC UA Server	Yes; data access (read, write, subscribe), method call, runtime license
 Application authentication 	required Available security policies: None, Basic128Rsa15, Basic256Rsa15,
	Basic256Sha256
— User authentication	"anonymous" or by user name & password
— Number of sessions, max.	10
 Number of subscriptions per session, max. 	50
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
- Number of server methods, max.	20
 — Number of monitored items, max. 	1 000
— Number of server interfaces, max.	2
 — Number of nodes for user-defined server interfaces, max. 	2 000
Further protocols	

MODBUS	Yes
Communication functions	
S7 communication	
supported	Yes
as server	Yes
• as client	Yes
User data per job, max.	See online help (S7 communication, user data size)
Number of connections	
• overall	PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64 max
Test commissioning functions	
Status/control	
 Status/control variable 	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	
Forcing	Yes
Diagnostic buffer	
• present	Yes
• present Traces	
	0
Number of configurable Traces	2
Memory size per trace, max.	512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
ERROR LED	Yes
MAINT LED	Yes
Integrated Functions	
Counter	
 Number of counters 	6
 Counting frequency, max. 	100 kHz
Frequency measurement	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction interface	Up to 4 with SB 1222
PID controller	Yes
Number of alarm inputs	4
Potential separation	
Potential separation digital inputs	
 Potential separation digital inputs 	500V AC for 1 minute
 between the channels, in groups of 	1
Potential separation digital outputs	
 Potential separation digital outputs 	Relays
between the channels	No
 between the channels, in groups of 	2
EMC	
Interference immunity against discharge of static electricity	
Interference immunity against discharge of static 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 to cable-bonne 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	

• Interfaces Interfaces Interfaces • Proceed-ass Interfaces Interfaces Interfaces • Interfaces Interfaces Interfaces Interfaces • Interfaces Interfaces Interfaces Interfaces • Interfaces Interfaces Interfaces Yes • Interfaces Interfaces Yes Yes • Upported Yes Yes Yes U approval Yes Yes Yes • Clus Yes Yes Yes • Mapproval Yes Yes Yes • Ambient constitions Fere fail • Firs fail • Firs fail • Firs fail • On the times, in product package Ambient constitions • Firs fail • Intrin - O 10 O 10 C Intrin • O 10 • Intrin - O 10		Ver
Interference immunity against conducted variable disturbance induced by high-frequency fields Initiation acc. In EC 51000-4-6 Ensistent of radio inderference acc. No EN 85 011 - Umit dass A, for use in individual areas Yes: Stroup 1 Value 3, for use in residential areas P degree and class of protection IP degree of protection P degree of protection	 Interference immunity on supply lines acc. to IEC 61000-4-5 	Yes
• Interference immunity against high-frequency radiation acts. Int EC 610004-6 Yes Emission of radio interference act. to EK 55 011 • Emission of radio interference act. to EK 55 011 • Limit class B, for use in residential areas Yes; Group 1 Yes When appropriate measures are used to ensure compliance with the limits for class B according to EN 55011 Depres and class of protection IP 20 Standards: approvals.cordificates Emark CE mark Yes UL approval Yes CLus Yes CA approval Yes ROM formerly C-TICK) Yes Ambient conditions Yes Free fail 0.3 m; five times, in product package Ambient temperature during operation -0° C • max. 60° C: • horizontal installation, min. -20° C • horizont		ce induced by high-frequency fields
Emission of radio inforference acc. to EHS 80.011		
• Limit class A, for use in industrial areas Yes; Group 1 • Limit class B, for use in industrial areas Yes; Group 1 Prefere and class G protection IP20 Standards, approvals, certificates IP20 CE mark Yes CLUs Yes FM approval Yes CLUs Yes FM approval Yes CAUs Yes FM approval Yes Ambient conditions Test field Free fail - • fail height, max. 0.3 m, five times, in product package Ambient conditions - • max. - adjacent partial at 0 * 5 °C vertical - • horizontal installation, min. - - vertical installation, max. - - o°C - • horizontal installation, max. - - o°C - • horizontal installation, max. - - o°C - • min. <td>radiation acc. to IEC 61000-4-6</td> <td></td>	radiation acc. to IEC 61000-4-6	
 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 Ves CLuss Ves Ambient approval Ves Ambient conditions Precisit Fine fail IP degree of low during operation IP degree of low during operation IP do low during operation IP do low during operation IP do low during dogree during to low during dogree during do	Emission of radio interference acc. to EN 55 011	
the limits for Class B according to EN 55011	 Limit class A, for use in industrial areas 	Yes; Group 1
Degree and class of protection IP20 IP degree of protection IP20 Standards, agree of protection IP20 CE mark Yes UL approvals, certificates Yes CH mark Yes CM (cornerly C-TICK) Yes FM approval Yes Ambient conditions Yes Free fail - Fail height, max. 0.3 m; five times, in product package Ambient conditions - Fail height, max. 0.3 m; five times, in product package Ambient conditions - 20 °C - 6 • min. - 60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no agle-mip onitrol) at 50 °C vertical. 8 or 6 at 55 °C horizontal installation, min. - 20 °C • horizontal installation, min. - 20 °C - 6 • horizontal installation, max. 50 °C • vertical installation, max. 50 °C • vertical installation, max. 50 °C • Adding approard -20 °C • workical installation, max. 50 °C • Operation, min. -20 °C • Operation, min. -20 °C	 Limit class B, for use in residential areas 	
IP degree of protection IP20 Standards, approvals, certificates Ves CE mark Yes UL approval Yes CALus Yes FM approval Yes RCM (formerly C-TICK) Yes KC approval Yes Ambient conditions Yes Free fail • 61 height, max. • Fail height, max. 0.3 m; five times, in product package Ambient conditions - • max. 60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C vertical. 8 or 6 at 55 °C horizontal nestalation, min. -20 °C • horizontal installation, min. -20 °C - • horizontal installation, min. -20 °C - • horizontal installation, max. 60 °C - • vertical installation, max. 60 °C - • vertical installation, max. 100 °C - • operation, max. 100 °C - • operation, max. 100 °C - • Operation, max. 1080 Pa - • Storage/transport, max. 1080 Pa - • Storage/		the limits for Class B according to EN 55011
Standards, approvals, cartificates Yes CE mark Yes UL approval Yes CUUs Yes RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes RCM approval Yes Ambient conditions Yes Free fail • Fail height, max. 0.3 m, five times, in product package Ambient conditions • Fail height, max. 0.3 m, five times, in product package Ambient temperature during operation • min. -20 °C • max. 0.3 m, five times, in product package Ambient temperature during operation • min. -20 °C • horizontal installation, min. -20 °C • O'C • horizontal installation, max. 60 °C • C • vertical installation, max. -20 °C • O'C • vertical installation, max. -20 °C • O'C • paration, min. -20 °C • O'C • max. 1000 hPa • O'C • operation, max. 1000 hPa • Storage/transport, min. • 1000 m • Installation atitude, max. <td></td> <td></td>		
CE mark Yes UL approval Yes CLUus Yes FM approval Yes RCM (formerly C-TICK) Yes CG approval Yes Marine approval Yes Ambient conditions Yes Free fall • Free fall • Fail height, max. 0.3 m; five times, in product package Ambient conditions • Free fall • min. -20 °C • min. -20 °C • horizontal installation, min. -20 °C • horizontal installation, max. 60 °C • vertical installation, max. 50 °C • Operation, min. -20 °C • Operation, max. 1080 hPa • Storage/transport, max. 1080 hPa • Storage/transport, max. 500 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humitity 600 m; Restrictions for installation altitudes > 2 000 m, see manu		IP20
UL approval Yes CULus Yes FM approval Yes RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes Marine approval Yes Ambient conditions Yes Free fall • Fail height, max. 0.3 m; five times, in product package Ambient temperature during operation • 0 • max. 0.3 m; five times, in product package Ambient temperature during operation • 0 • max. 0.3 m; five times, in product package Ambient temperature during operation • 0 • max. -20 ° C • horizontal installation, min. -20 ° C • horizontal installation, max. 60 ° C • vertical installation, max. 60 ° C • vertical installation, max. 50 ° C • wertical installation, max. 50 ° C • min. -40 ° C • max. 70 ° C Alt pressure acc to IEC 60068-2-13 • 0 peration, min. • Operation, min. 1080 hPa • Storage/transport, min. 1080 hPa • Storage/transport, max. 1080 hPa • Installation altitude, max 5 000 m; Restrictions for installation altitudes > 2 000 m; see manual Relative huminutity <td< td=""><td>Standards, approvals, certificates</td><td></td></td<>	Standards, approvals, certificates	
eULus Yes FM approval Yes FRM (formerly C-TICK) Yes KCapproval Yes Ambient conditions Yes Free fall 0.3 m; five times, in product package Ambient conditions -0 °C • Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation -0 °C • min. -0 °C • nmax. 60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal installation, min. • horizontal installation, max. 60 °C • vertical installation, max. 60 °C • vertical installation, max. 60 °C • vertical installation, max. 70 °C • Nombert temperature during storage/transportation -40 °C • min. -20 °C • Operation, max. 1080 hPa • Operation, max. 1080 hPa • Operation, max. 1080 hPa • Storage/transport, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity -1 000 m • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity -1 000 m • Installation resitance during ope	CE mark	Yes
FM approval Yes RCM (tormerly C-TICK) Yes Marine approval Yes Marine approval Yes Ambient conditions Yes Free fall 0.3 m; five times, in product package Ambient temperature during operation -00 °C or min. -20 °C max. 60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical. • horizontal installation, min. -20 °C • horizontal installation, min. -20 °C • vertical installation, max. 60 °C • vertical installation, max. 60 °C • vertical installation, max. 50 °C • vertical installation, max. 50 °C • operation, max. 100 °C • operation, max. 1080 hPa • Operation, max. 1080 hPa • Operation, max. 1080 hPa • Storage/transport, max. 1080 hPa • Installation altitude, min. -1 000 m • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity -0 peration, max. 95 %; no condensation <td>UL approval</td> <td>Yes</td>	UL approval	Yes
RCM (formerly C-TICK) Yes KC approval Yes Ambient conditions Yes Ambient conditions 0.3 m; five times, in product package Ambient temperature during operation 0.3 m; five times, in product package Ambient temperature during operation -20 °C • min. -20 °C • max. 60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal installation, min. • horizontal installation, min. -20 °C • vertical installation, min. -20 °C • vertical installation, max. 60 °C • vertical installation, max. 70 °C Ambient temperature during storage/transportation - • min. -40 °C • min. -20 °C • Operation, min. -40 °C • Operation, min. -90 °C • Operation, min. -90 °C • Operation, max. 1080 hPa • Storage/transport, max. 1080 hPa • Installation altitude, min. -1 000 m • Installation altitude, min. -1 000 m • Installational titude, min. -1 000 m	cULus	Yes
KC approval Yes Marine approval Yes Anbient conditions Free fall • Fail height, max. 0.3 m; five times, in product package Ambient emperature during operation -20 °C • min. -20 °C • mix. 60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horazontal or 50 °C vertical, 6 or 6 at 55 °C horazontal or 50 °C vertical, 7 °C vertical or 45 °C vertical • horizontal installation, min. -20 °C • horizontal installation, max. 60 °C • vertical installation, max. 60 °C • vertical installation, max. 50 °C • vertical installation, max. 70 °C • min. -40 °C • min. -20 °C • operation, max. 1080 hPa • Operation, min. -40 °C • Operation, max. 1080 hPa • Operation, max. 1080 hPa • Storage/transport, max. 1080 hPa • Installation altitude, min. -1 000 m • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m; see manual Relative humidity • Operation, max. 2 g (m/s*) DIN rall	FM approval	Yes
Marine approval Yes Antibient conditions Free fail • Fail height, max. 0.3 m; five times, in product package Ambient temperature during operation • or ini. • max. 60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal installation, min. • horizontal installation, min. -20 °C • horizontal installation, max. 60 °C • vertical installation, max. 50 °C • working installation, max. 60 °C • vertical installation, max. 50 °C • Ambient temperature during storage/transportation -40 °C • min. -20 °C • Operation, min. -20 °C • Operation, min. -40 °C • Operation, min. -40 °C • Storage/transport, min. 660 PB • Storage/transport, min. 1080 hPa • Storage/transport, min. 1080 hPa • Installation altitude, max. 5000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity • Operation, max. • Operation, max. 95 %; no condensation • Installation altitude, max. 5000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity • Operation, max. 95 %; no condensat	RCM (formerly C-TICK)	Yes
Ambient conditions • Fail height, max. 0.3 m; five times, in product package Ambient temperature during operation -20 °C • min. -20 °C • max. 60 °C: Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal installation, min. -20 °C • horizontal installation, min. -20 °C • vertical installation, max. 60 °C • vertical installation, max. 60 °C • vertical installation, max. 50 °C • operation, max. 70 °C Arr pressure ace. to EC 60068-2-13 -00 °C • Operation, min. 795 hPa • Operation, min. 1080 hPa • Storage/transport, min. 50000 m? • Installation attitude, max. 50000 m; Restrictions for installation attitudes > 2 000 m, see manual Relative humidity - • Operation, max. 95 %; no condensation Vibration resistance during operation acc. to IEC 2 g (m/s²) wall mounting. 1 g (m/s²) DIN rail <t< td=""><td>KC approval</td><td>Yes</td></t<>	KC approval	Yes
Free fail Fail height, max. O.3 m; five times, in product package Ambient temperature during operation -20 °C max. G0 °C, Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical. borizontal installation, min. -20 °C horizontal installation, min. -20 °C horizontal installation, max. 60 °C vertical installation, max. 50 °C Ambient temperature during storage/transportation - vertical installation, min. -20 °C vertical installation, max. 50 °C vertical installation, max. 50 °C vertical installation, min. -20 °C Altroge/transport, min. 00eration, min. 1080 Pla Altitude during operation relating to sea level installation altitude, max. 50	Marine approval	Yes
 Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation -20 °C 60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal installation, min. -20 °C horizontal installation, min. -20 °C vertical installation, max. 60 °C vertical installation, min. -20 °C vertical installation, max. 50 °C Ambient temperature during storage/transportation inin. 40 °C max. 70 °C Ambient temperature during storage/transportation inin. 40 °C max. Operation, min. 40 °C max. Operation, max. 1080 hPa Storage/transport, max. 1080 hPa Storage/transport, max. 1080 hPa Installation altitude, min. 1080 hPa Norage/transport, max. 50 °C Vibration resistance during operation acc. to IEC 60068-2-13 Operation, max. 50 °C Norage/transport, max. 50 °C Norage/transport, max. 50 °C Vibration resistance during operation acc. to IEC 60068-2-6 Yes Notal preside according to IEC 60068-2-7 Yes: IEC 68, Part 2-27 ha	Ambient conditions	
Ambient temperature during operation -20 °C • min. -20 °C • max. 60 °C: Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal installation, min. -20 °C • borizontal installation, min. -20 °C • vertical installation, max. 60 °C • vertical installation, max. 60 °C • vertical installation, max. 50 °C • orizontal metallinstallation, max. 50 °C • orin. -20 °C • vertical installation, max. 50 °C • orin. -20 °C • vertical installation, max. 50 °C • orin. -20 °C • orin. -40 °C • orin. -40 °C • orin. -40 °C • orin. -1000 M • olstallation altitude, min. -1 000 m • installation alt	Free fall	
• min. -20 °C • max. 60 °C, Number of site Multaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical. 8 or 6 at 55 °C horizontal or 50 °C vertical installation, min. • horizontal installation, min. -20 °C • vertical installation, min. -20 °C • vertical installation, max. 60 °C • vertical installation, max. 50 °C • vertical installation, max. 50 °C • vertical installation, max. 70 °C • nin. -40 °C • min. -40 °C • nin. -70 °C • Norage/transport. 70 °C Ait pressure acc. to IEC 60068-2-13 -70 °C • Operation, max. 1080 Pa • Storage/transport, min. 660 Pa • Storage/transport, max. 1000 m • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity -90 peration, max. 95 %; no condensation Vibra	 Fall height, max. 	0.3 m; five times, in product package
• max. 60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal installation, min. -20 °C • horizontal installation, min. -20 °C • vertical installation, max. 60 °C • vertical installation, max. 50 °C • vertical installation, max. 50 °C Ambient temperature during storage/transportation - • max. 70 °C Ambient temperature during storage/transportation - • or c - • max. 70 °C Ambient temperature during storage/transport. 70 °C Air pressure acc. to IEC 60068-2-13 - • Operation, min. 79 °C • Operation, min. 79 °C • Operation, max. 10 80 hPa • Storage/transport, max. 10 80 hPa • Installation altitude, min. -1 000 m • Installation altitude, min. -1 000 m • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity - • Operation, max. 95 %; no condensation Vibration resistance during operation acc. to IEC co068-2	Ambient temperature during operation	
adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal installation, min. -20 °C • horizontal installation, max. 60 °C • vertical installation, max. 50 °C • vertical installation, max. 50 °C • vertical installation, max. 50 °C Ambient temperature during storage/transportation -0 °C • max. 70 °C All pressure acc. to IEC 60068-2-13 -0 °C • Operation, min. 795 hPa • Operation, max. 1080 hPa • Storage/transport, min. 66 00 Pa • Storage/transport, max. 1080 hPa • Installation altitude, min. -1 000 m • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity -0 operation, max. • Operation, max. 95 %; no condensation Vibration resistance during operation acc. to IEC 60068-2-6 Yes Shock testing - • Operation, tested according to IEC 60068-2-6 Yes Shock testing - • Operation, tested according to IEC 60068-2-7 Yes IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11	● min.	-20 °C
horizontal or 45 °C vertical • horizontal installation, min. -20 °C • vertical installation, max. 60 °C • vertical installation, max. 50 °C • min. -40 °C • max. 70 °C Arbitent temperature during storage/transportation -40 °C • max. 70 °C Air pressure acc. to IEC 60068-2-13 -0 peration, min. • Operation, max. 1080 hPa • Storage/transport, max. 1080 hPa • Storage/transport, max. 1080 hPa • Altitude during operation relating to sea level - • Installation altitude, max. 5000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humitity - 0 Operation, max. • Operation, max. 95 %; no condensation Vibration resistance during operation acc. to IEC 2 g (m/s ^a) wall mounting, 1 g (m/s ^a) DIN rail • Operation, tested according to IE	• max.	
 horizontal installation, min. -20 °C horizontal installation, max. 60 °C vertical installation, min. -20 °C Ambient temperature during storage/transportation min. 40 °C max. 70°C Arr pressure acc. to IEC 60068-2-13 Operation, max. 1080 hPa Storage/transport, max. 1000 m Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity Vibration Vibration resistance during operation acc. to IEC Q (m/s²) wall mounting, 1 g (m/s²) DIN rail Operation, tested according to IEC 60068-2-6 Yes Shock testing etstel 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%		
• horizontal installation, max. 60 °C • vertical installation, min. -20 °C • vertical installation, max. 50 °C Ambient temperature during storage/transportation - • min. -40 °C • max. 70 °C Air pressure acc. to IEC 60068-2-13 - • Operation, max. 1080 hPa • Operation, max. 1080 hPa • Storage/transport, max. 1080 hPa • Installation altitude, min. -1 000 m • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity - • Operation, max. 5 %; no condensation Vibrations - • Vibration resistance during operation acc. to IEC 60068-2-6 Yes Shock testing - • Vibration resistance during to IEC 60068-2-6 Yes Shock testing - • tested according to IEC 60068-2-27 Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms Pollutant concentrations - - • SO2 at RH < 60% without condensation		
• vertical installation, min. -20 °C • vertical installation, max. 50 °C Ambient temperature during storage/transportation -40 °C • max. 70 °C Air pressure acc. to IEC 60068-2-13 -0 °C • Operation, min. 79 5 hPa • Operation, max. 1080 hPa • Storage/transport, max. 1080 hPa • Storage/transport, max. 1080 hPa • Installation altitude, min. -1 000 m • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity -1 000 m • Operation, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity -1 000 m • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity -1 000 m • Operation, max. 95 %; no condensation Vibration -1 000 m • Vibration resistance during operation acc. to IEC 2 g (m/s ⁵) wall mounting, 1 g (m/s ⁵) DIN rail 00088-2-6 Yes Shock testing - • tested according to IEC 60068-2-27 Yes; IEC 68, Part 2-27		
• vertical installation, max. 50 °C Ambient temperature during storage/transportation -40 °C • min. -40 °C • max. 70 °C Air pressure acc. to IEC 60068-2-13 -0 peration, min. • Operation, min. 795 hPa • Operation, max. 1 080 hPa • Storage/transport, max. 1 080 hPa • Storage/transport, max. 1 080 hPa • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity • Operation, elsistance during operation acc. to IEC 60068-2-6 • Vibration resistance during operation acc. to IEC 60068-2-6 Yes • Shock testing Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms Pollutant concentrations S02 < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free		
Ambient temperature during storage/transportation		
 min. 40 °C max. 70 °C Air pressure acc. to IEC 60068-2-13 Operation, min. 795 hPa Operation, max. 1080 hPa Storage/transport, min. 660 hPa Storage/transport, max. 1080 hPa Attitude during operation relating to sea level Installation altitude, min1 000 m Installation altitude, max. 5000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity Operation, max. 95 %; no condensation Vibrations Vibrations 22 g (m/s²) wall mounting, 1 g (m/s²) DIN rail Operation, tested according to IEC 60068-2-6 Yes Shock testing Itested according to IEC 60068-2-7 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 SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free Configuration Programming language — LAD — FBD Yes 		50 °C
• max. 70 °C Air pressure acc. to IEC 60068-2-13 - • Operation, min. 795 hPa • Operation, max. 1 080 hPa • Storage/transport, min. 660 hPa • Storage/transport, max. 1 080 hPa • Installation altitude, min. -1 000 m • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity - • Operation, tested according to IEC 60068-2-6 Yes • Vibrations 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail • Vibration resistance during operation acc. to IEC 60068-2-6 Yes Shock testing Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms Pollutant concentrations S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free	Ambient temperature during storage/transportation	
Air pressure acc. to IEC 60068-2-13 795 hPa • Operation, min. 795 hPa • Operation, max. 1 080 hPa • Storage/transport, min. 660 hPa • Installation altitude, min. 1 080 hPa • Installation altitude, min. -1 000 m • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity -0 peration, max. • Operation, max. 95 %; no condensation Vibrations -1 000 m • Operation, max. 95 %; no condensation Vibrations -1 000 m • Operation, max. 95 %; no condensation Vibrations -1 000 m • Operation, tested according operation acc. to IEC 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail • Operation, tested according to IEC 60068-2-6 Yes Shock testing - • tested according to IEC 60068-2-27 Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms Pollutant concentrations SO2 at RH < 60% without condensation	• min.	
• Operation, min. 795 hPa • Operation, max. 1 080 hPa • Storage/transport, min. 660 hPa • Storage/transport, max. 1 080 hPa • Storage/transport, max. 1 080 hPa • Altitude during operation relating to sea level - • Installation altitude, min. -1 000 m • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity - • Operation, max. 95 %; no condensation Vibrations - • Vibration resistance during operation acc. to IEC 60068-2-6 Yes • Operation, tested according to IEC 60068-2-6 Yes • Shock testing - • tested according to IEC 60068-2-7 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		70 °C
Operation, max. 1 080 hPa • Storage/transport, max. 660 hPa • Storage/transport, max. 1 080 hPa Attitude during operation relating to sea level - • Installation altitude, min. -1 000 m • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity - • Operation, max. 95 %; no condensation Vibrations - • Vibration resistance during operation acc. to IEC 60068-2-6 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail • Operation, tested according to IEC 60068-2-6 Yes Shock testing - • tested according to IEC 60068-2-6 Yes Shock testing - • SO2 at RH < 60% without condensation	· ·	
Storage/transport, min.660 hPa• Storage/transport, max.1 080 hPaAltitude during operation relating to sea level• Installation altitude, min1 000 m• Installation altitude, max.5 000 m; Restrictions for installation altitudes > 2 000 m, see manualRelative humidity-• Operation, max.95 %; no condensationVibrations2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail• Operation, tested according to IEC 60068-2-6Yes• Operation, tested according to IEC 60068-2-6Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 msPollutant concentrationsS02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free		
• Storage/transport, max. 1 080 hPa Attitude during operation relating to sea level • Installation altitude, min. -1 000 m • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity - • Operation, max. 95 %; no condensation Vibrations - • Vibration resistance during operation acc. to IEC 60068-2-6 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail • Operation, tested according to IEC 60068-2-6 Yes Shock testing - • tested according to IEC 60068-2-7 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		
Attitude during operation relating to sea level • Installation altitude, min. • Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity • Operation, max. 95 %; no condensation Vibrations • Vibration resistance during operation acc. to IEC 60068-2-6 • Operation, tested according to IEC 60068-2-6 • Operation, tested according to IEC 60068-2-6 • Operation, tested according to IEC 60068-2-6 • tested according to IEC 60068-2-7 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		
 Installation altitude, min. -1 000 m Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity Operation, max. 95 %; no condensation Vibrations Vibration resistance during operation acc. to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6 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 Programming language - LAD - FBD Yes 		1 080 hPa
● Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Relative humidity 95 %; no condensation ● Operation, max. 95 %; no condensation Vibrations 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail • Vibration resistance during operation acc. to IEC 60068-2-6 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail • Operation, tested according to IEC 60068-2-6 Yes Shock testing • • tested according to IEC 60068-2-7 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		
Relative humidity 95 %; no condensation • Operation, max. 95 %; no condensation Vibrations 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail • Vibration resistance during operation acc. to IEC 60068-2-6 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail • Operation, tested according to IEC 60068-2-6 Yes Shock testing • • tested according to IEC 60068-2-7 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		
• Operation, max. 95 %; no condensation Vibrations • Vibration resistance during operation acc. to IEC 60068-2-6 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail • Operation, tested according to IEC 60068-2-6 Yes Shock testing • • tested according to IEC 60068-2-7 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	Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Vibrations • Vibration resistance during operation acc. to IEC 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail 60068-2-6 Yes • Operation, tested according to IEC 60068-2-6 Yes Shock testing • • tested according to IEC 60068-2-7 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		
• Vibration resistance during operation acc. to IEC 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail • Operation, tested according to IEC 60068-2-6 Yes Shock testing - • tested according to IEC 60068-2-27 Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms Pollutant concentrations - • SO2 at RH < 60% without condensation	Operation, max.	95 %; no condensation
60068-2-6 Ves • Operation, tested according to IEC 60068-2-6 Yes Shock testing • tested according to IEC 60068-2-27 Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms Pollutant concentrations • SO2 at RH < 60% without condensation		
• Operation, tested according to IEC 60068-2-6 Yes Shock testing • • tested according to IEC 60068-2-27 Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms Pollutant concentrations • • SO2 at RH < 60% without condensation		2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
Shock testing • tested according to IEC 60068-2-27 Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms Pollutant concentrations • SO2 at RH < 60% without condensation		N/ss
 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 SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free Configuration Programming Programming language LAD Yes FBD Yes 		Yes
value), duration 11 ms Pollutant concentrations • SO2 at RH < 60% without condensation		
Pollutant concentrations • SO2 at RH < 60% without condensation	 tested according to IEC 60068-2-27 	
• SO2 at RH < 60% without condensation	Pollutant concentrations	
Configuration Programming Programming language - LAD - FBD Yes		S02: < 0.5 npm; H2S; < 0.1 npm; RH < 60% condensation free
Programming Programming language — LAD Yes — FBD Yes		002 0.0 ppm, n20 0.1 ppm, n1 - 00 /0 condensation-nee
Programming language Yes - LAD Yes - FBD Yes		
— LAD Yes — FBD Yes		
— FBD Yes		Ver
- SUL Yes		
	— 30L	105

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
Cycle time monitoring	
adjustable	Yes
Dimensions	
Width	90 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	425 g

last modified:

4/12/2021 🖸