SIEMENS

Data sheet

6AG1215-1AG40-2XB0



SIPLUS S7-1200 CPU 1215C DC/DC/DC based on 6ES7215-1AG40-0XB0 with conformal coating, -40...+70 °C, start up -25 °C, signal board: 0, compact CPU, DC/DC/DC, 2 PROFINET ports, onboard I/O: 14 DI 24 V DC; 10 DQ 24 V DC 0.5 A 2 AI 0-10 V DC, 2 AQ 0-20 mA DC, power supply: DC 20.4-28.8 V DC, program/data memory 125 KB

General information	
Product type designation	CPU 1215C DC/DC/DC
Firmware version	V4.1
Engineering with	
 STEP 7 TIA Portal configurable/integrated from 	see entry ID: 109746275
version	
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
Load voltage L+	
• Rated value (DC)	24 V
• permissible range, lower limit (DC)	5 V
permissible range, upper limit (DC)	250 V
Input current	
Current consumption (rated value)	500 mA; CPU only
Current consumption, max.	1 500 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V DC
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 	100 kbyte
expandable	No
Load memory	
• integrated	4 Mbyte
Plug-in (SIMATIC Memory Card), max.	with SIMATIC memory card
Backup	
• present	Yes; maintenance-free
without battery	Yes
CPU processing times	
for bit operations, typ.	0.085 μs; / instruction
for word operations, typ.	1.5 μs; / instruction
for floating point arithmetic, typ.	2.5 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.	10 kbyte
Flag	
• Size, max.	8 kbyte; Size of bit memory address area
Address area	
I/O address area	4.024 hite
Inputs	1 024 byte
Outputs Process image	1 024 byte
Inputs, adjustable	1 kbyte
Outputs, adjustable	1 kbyte
	i kbyte
Hardware configuration	
Number of modules per system, max.	3 communication modules, no signal board can be used, 8 signal modules
Time of day	
Clock	, v
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.	in groups of four 0.2 ms
— at "0" to "1", min. — at "0" to "1", max.	in groups of four
 — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs 	in groups of four 0.2 ms 12.8 ms
 — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable 	in groups of four 0.2 ms
 — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions 	in groups of four 0.2 ms 12.8 ms Yes
 — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable 	in groups of four 0.2 ms 12.8 ms
 — at "0" to "1", min. — at "0" to "1", max. for interrupt inputs — parameterizable for technological functions 	in groups of four 0.2 ms 12.8 ms Yes Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3
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Analog inputs	
Number of analog inputs	2
Input ranges	2
Voltage	Yes
Input ranges (rated values), voltages	
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	
• shielded, max.	100 m; twisted and shielded
Analog outputs	
Number of analog outputs	2
	2
Output ranges, current • 0 to 20 mA	Yes
	165
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	1017
• 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
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
1. Interface	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Interface types	
RJ 45 (Ethernet)	Yes
Protocols	
 PROFINET IO Controller 	Yes
PROFINET IO Device	Yes; Also simultaneously with IO-Device functionality
PROFINET IO Controller	
 Transmission rate, max. 	100 Mbit/s
Services	
 — Number of connectable IO Devices, max. 	16
PROFINET IO Device	
Services	
— 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 required
AS-Interface	Yes
Protocols (Ethernet)	
• TCP/IP	Yes
Open IE communication	
• TCP/IP	Yes
• ISO-on-TCP (RFC1006)	Yes
• UDP	Yes
Web server	
supported	Yes
User-defined websites	Yes
Further protocols	Vee
MODBUS	Yes
communication functions / header	
S7 communication	

 as server Yes As Scholl Yes Another of connections coverall (2, dynamically) Test commissioning functions StatusControl variable Yes Variables InputSoutputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Yes Variables Forcing Yes StatusControl variable Yes Variables StatusControl variable Yes Variables Prequency measurement Yes Variables Protocol Yes Variables StatusControl variable Yes Variables Potential separation Ves Potential separation diptal inputs A None of diam inputs A Variables Potential separation diptal inputs Potenting Potential separation diptal inputs <li< th=""><th> supported </th><th>Yes</th></li<>	 supported 	Yes
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EMC Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity • Interference immunity against discharge 8 kV • Test voltage at air discharge 8 kV • Test voltage at air discharge 8 kV • Interference immunity to cable-borne interference 6 kV Interference immunity to cable-borne interference Yes • Interference immunity to cable-borne interference Yes • Interference immunity on supply lines acc. to IEC Yes 61000-4-4 Interference immunity against toltage surge • Interference immunity against toptage surge Yes • Interference immunity against conducted variable disturbance Induced by high-frequency fields • Interference immunity against topt-frequency radiation acc. to IEC 61000-4-6 Yes Emission of radio interference acc. to INS 50 11 Yes; Group 1 • Limit class A, for use in industrial areas Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Degree of protection IP20 Ambient conditions IP20 Ambient temperature during operation -40 °C; = Tmax; Tmax >+55 °C • max. 0 °C; = Tmax; Tmax >+55 °C		
Interference immunity against discharge of static electricity Yes - Interference immunity against discharge of static electricity Yes - Test voltage at air discharge 6 kV 8 kV - Test voltage at contact discharge 6 kV 8 kV - Test voltage at contact discharge 6 kV 9 kV - Interference immunity to cable-borne interference 9 kV - Interference immunity on supply lines acc. to IEC 61000-4.4 Yes - Interference immunity against conducted variable disturbance induced by high-frequency fields Yes - Interference immunity against tigh-frequency radiation acc. to IEC 61000-4.4 - Interference immunity against conducted variable disturbance induced by high-frequency fields Yes - Interference immunity against conducted variable disturbance induced by high-frequency fields Yes - Interference immunity against conducted variable disturbance induced by high-frequency fields Yes - Limit class A, for use in residential areas Yes; Group 1 - Limit class B, for use in residential areas Yes; Group 1 - Ere fail -		1
• Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 Yes - Test voltage at air discharge 8 kV - Test voltage at air discharge 6 kV Interference immunity to cable-borne interference Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity against voltage surge • Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against conducted variable disturbance induced by high-frequency fields Yes • Interference immunity against conducted variable disturbance induced by high-frequency fields Yes • Interference acc. to EN 55 011 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 • Limit class A, for use in industrial 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 IP20 Ambient conditions - Free fail -0.3 m; five times, in product package • max. -70 °C; = Tran; Trax > +55 °C momber of simultaneously switched-on digital inputs 7, digital		
electricity acc. to IEC 61000-4:2 8 kV — Test voltage at air discharge 8 kV — Test voltage at contact discharge 6 kV Interference immunity to cable-borne interference 9 • Interference immunity on supply lines acc. to IEC 61000-4:4 Yes • Interference immunity against voltage surge • Interference immunity against voltage surge • Interference immunity against voltage surge Yes • Interference immunity against toils exc. to IEC 61000-4:5 Yes Interference immunity against ingh-frequency rediation acc. to IEC 61000-4:6 Yes Emission of radio interference acc. to EN 55 011 Yes • Limit class A, 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 IP20 Ambient conditions Free fail • Fail height, max. 0.3 m; five times, in product package Ambient temperature during operation -40 °C; = Trmin (incl. condensation/frost); start-up @ -25 °C • max. -70 °C; = Trmin (incl. condensation/frost); start-up @ -25 °C • max. -70 °C; = Trmin (incl. condensation/frost); start-up @ -25 °C • max. -70 °C; = Trmax; Trmax > +56 °C number of simultaneously switched-		
Test voltage at air discharge 8 kV Test voltage at contact discharge 6 kV Interference immunity to cable-borne interference 6 kV Interference immunity on supply lines acc. to IEC 61000-4.4 Yes Interference immunity against voltage surge Yes Emission of radio interference acc. to EN 55 011		Yes
— Test voltage at contact discharge 6 kV Interference immunity to cable-borne interference • Interference immunity on supply lines acc. to IEC 61000-4-4 • Interference immunity on signal cables acc. to IEC 61000-4-4 Yes • Interference immunity against voltage surge Yes • Interference immunity against voltage surge Yes • Interference immunity against voltage surge Yes • Interference immunity against conducted variable disturbance induced by high-frequency fields Yes • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Yes; Group 1 • Limit class A, for use in industrial areas Yes; Group 1 • Limit class B, for use in residential areas Yes; Group 1 • Limit class G for toection IP20 Ambient conditions IP20 Free fall	-	8 kV
• Interference immunity on supply lines acc. to IEC 61000-4-4 Yes • Interference immunity against voltage surge Yes • Interference immunity against voltage surge Yes • Interference immunity against voltage surge Yes • Interference immunity against conducted variable disturbance Yes Interference immunity against conducted variable disturbance Yes • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Yes Emission of radio interference acc. to EN 55 011 Yes • Limit class A, for use in industrial areas • 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 IP20 Ambient conditions IP20 Ambient temperature during operation -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • min. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. 70 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C		6 kV
61000-4-4 • Interference immunity on signal cables acc. to IEC Yes Interference immunity against voltage surge • Interference immunity against voltage surge • Interference immunity against conducted variable disturbance Yes Interference immunity against conducted variable disturbance Yes • Interference immunity against high-frequency radiation acc. to IEC 61000-4-5 Yes Emission of radio interference acc. to EN 55 011 Yes; Group 1 • Limit class A, for use in industrial 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 IP20 Ambient conditions Free fall • Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • min. -40 °C; = Tmix; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position • At cold restart, min. -25 °C • At cold restart, min. -25 °C	Interference immunity to cable-borne interference	
61000-4-4 Interference immunity against voltage surge • Interference immunity on supply lines acc. to IEC 61000-4-5 Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas • Limit class B, for use in residential areas • Limit class of protection IP degree of protection IP degree of protection IP ree fall • Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation • min. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. -40 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog outputs 2, noalog outputs 2, noalog outputs 5, analog inputs 2, analog outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position; Tmax > +60 °C • At cold restart, min. -25 °C • At cold restart, min. -25 °C		Yes
Interference immunity on supply lines acc. to IEC 61000-4-5 Interference immunity against conducted variable disturbance induced by high-frequency fields Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 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 industrial 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 IP degree of protection IP degree of protection IP degree fall • Free fall • Free fall • Free fall • min. • max. • max. • analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position: Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog outputs 2 (no adjacent points) with horizontal mounting position; max > +60 °C runber of simultaneously switched-on digital inputs 7, digital outputs 5, analog outputs 1 (no adjacent points) with horizontal mounting position; max > +60 °C runber of simultaneously switched-on digital inputs 7, digital outputs 5, analog outputs 1 (no adjacent points) with horizontal mounting position; max > +60 °C runber of simultaneously switched-on digital inputs 7, digital outputs 5, analog outputs 1 (no adjacent points) with horizontal mounting position; max > +60 °C runber of simultaneously switched-on digital inputs 7, d		Yes
61000-4-5 Interference immunity against conducted variable disturbance 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 • Limit class B, for use in residential areas Yes; Group 1 • Limit class G protection Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 Degree and class of protection IP20 Ambient conditions Free fall • Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. 70 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position • At cold restart, min. -25 °C Ambient temperature during storage/transportation -25 °C	Interference immunity against voltage surge	
Interference immunity against conducted variable disturbance induced by high-frequency fields Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Emission of radio interference acc. to EN 55 011 Limit class A, for use in industrial areas 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 IP20 IP degree of protection IP20 Ambient conditions Free fall Fall height, max. 0.3 m; five times, in product package Minint temperature during operation -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C O °C °C number of simultaneously switched-on digital inputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs		Yes
• 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 • Limit class B, for use in residential 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 IP20 IP degree of protection IP20 Ambient conditions • Free fall • Frae fall • 0.3 m; five times, in product package Ambient temperature during operation -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. 0 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. or °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. or °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • m		
radiation acc. to IEC 61000-4-6 Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas • Limit class B, for use in residential areas • Limit class of protection IP degree of protection IP degree of protection IP degree of protection IP degree of protection IP adgree and class of protection IP degree of protection IP degree of protection IP adgree and class of protection IP adgree of protection I		
Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas • Limit class B, for use in residential areas • Limit class B, for use in residential areas • 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 Degree and class of protection IP degree of protection Free fall • Fall height, max. Ambient temperature during operation • min. • max. 0.3 m; five times, in product package Ambient temperature during operation • max. 0.3 m; five times, in product package Anbient temperature during operation • max. 0.3 m; five times, in product package Ambient temperature during operation • A0 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position • At cold restart, min. -25 °C Ambient temperature during storage/transportation <		Yes
• 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 IP20 IP degree of protection IP20 Ambient conditions IP20 Free fall • Call height, max. 0.3 m; five times, in product package Ambient temperature during operation • min. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. 70 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position • At cold restart, min. -25 °C Ambient temperature during storage/transportation -25 °C		
• 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 IP20 IP degree of protection IP20 Ambient conditions Free fall 0.3 m; five times, in product package Ambient temperature during operation 0.3 m; five times, in product package • min. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. 70 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position • At cold restart, min. -25 °C • Ambient temperature during storage/transportation -25 °C		Yes; Group 1
the limits for Class B according to EN 55011 Degree and class of protection IP degree of protection IP20 Ambient conditions Free fall 0.3 m; five times, in product package Ambient temperature during operation 0.3 m; five times, in product package Ambient temperature during operation -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. -40 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position • At cold restart, min. -25 °C Ambient temperature during storage/transportation -25 °C		
IP degree of protection IP20 Ambient conditions Free fall • Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation • min. • min. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. 70 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position • At cold restart, min. -25 °C Ambient temperature during storage/transportation -25 °C		
IP degree of protection IP20 Ambient conditions Free fall • Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation • min. • min. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. 70 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position • At cold restart, min. -25 °C Ambient temperature during storage/transportation -25 °C	Degree and class of protection	
Ambient conditions Free fall • Fall height, max. Ambient temperature during operation • min. • max. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C 70 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position • At cold restart, min. -25 °C Ambient temperature during storage/transportation -25 °C	IP degree of protection	IP20
Free fall • Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. -40 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position • At cold restart, min. -25 °C Ambient temperature during storage/transportation -25 °C		
• Fall height, max. 0.3 m; five times, in product package Ambient temperature during operation • min. • min. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C • max. 70 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog outputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position • At cold restart, min. -25 °C Ambient temperature during storage/transportation -25 °C		
Ambient temperature during operation • min. • max. • max. 70 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position • At cold restart, min. -25 °C Ambient temperature during storage/transportation		0.3 m; five times, in product package
 min. -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C max. 70 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position At cold restart, min. -25 °C 		
 max. 70 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position At cold restart, min. -25 °C Ambient temperature during storage/transportation 		-40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C
Ambient temperature during storage/transportation		digital inputs 7, digital outputs 5, analog inputs 2, analog outputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 1, analog outputs 1 (no adjacent points) with horizontal mounting position
		-40 °C

● max.	70 °C
Altitude during operation relating to sea level	
Installation altitude above sea level, max.	5 000 m
Ambient air temperature-barometric pressure- altitude	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)
Relative humidity	
With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
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
Operation, tested according to IEC 60068-2-6 Shock testing	Yes
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
Resistance	
Coolants and lubricants — Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
Use in stationary industrial systems	
 to biologically active substances according to EN 60721-3-3 to chemically active substances according to EN 60721-3-3 to mechanically active substances according to 	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * Yes; Class 3S4 incl. sand, dust, *
EN 60721-3-3	,
Use on ships/at sea	
 — to biologically active substances according to EN 60721-3-6 	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
 to chemically active substances according to EN 60721-3-6 to mechanically active substances according to 	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * Yes; Class 6S3 incl. sand, dust; *
 — to mechanically active substances according to EN 60721-3-6 	res, class 055 incl. salid, dust,
Usage in industrial process technology	
 Against chemically active substances acc. to EN 60654-4 	Yes; Class 3 (excluding trichlorethylene)
 Environmental conditions for process, measuring and control systems acc. to ANSI/ISA- 71.04 	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
 — Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
 Coatings for printed circuit board assemblies acc. to EN 61086 	Yes; Class 2 for high reliability
 Protection against fouling acc. to EN 60664-3 	Yes; Type 1 protection
 Military testing according to MIL-I-46058C, Amendment 7 	Yes; Discoloration of coating possible during service life
 Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A 	Yes; Conformal coating, Class A
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
programming / cycle time monitoring / header	
adjustable	Yes
Dimensions	
Width	130 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	500 g

last modified: