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Data sheet

6AG1214-1HG40-2XB0

SIPLUS S7-1200 CPU 1214C DC/DC/relay -40...+70°C with conformal coating based on 6ES7214-1HG40-0XB0 . compact CPU, DC/DC/relay, onboard I/O: 14 DI 24 V DC 10 DO relay 2 A 2 AI 0-10 V DC, Power supply: DC 20.4-28.8V DC, Program/data memory 100 KB

General information	
Product type designation	CPU 1214C DC/DC/relay
Firmware version	V4.1
Engineering with	
 Programming package 	STEP 7 V13 SP1 or higher
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Load voltage L+	
 Rated value (DC) 	24 V
 permissible range, lower limit (DC) 	20.4 V
 permissible range, upper limit (DC) 	28.8 V
Input current	
Current consumption (rated value)	500 mA; CPU only
Current consumption, max.	1 500 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V
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

10/19/2020

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 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
Backup	
• present	Yes; maintenance-free
without battery	Yes
without ballory	
CPU processing times	_
for bit operations, typ.	0.085 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.	10 kbyte
Flag	
• Number, max.	8 kbyte; Size of bit memory address area
Address area	
Process image	
 Inputs, adjustable 	1 kbyte
 Outputs, adjustable 	1 kbyte
Hardware configuration Number of modules per system, max.	2 communication modulos, no signal board can be used 0 signal
Number of modules per system, max.	3 communication modules, no signal board can be used, 8 signal modules
Time of day	
Clock	
 Hardware clock (real-time) 	Yes
Backup time	480 h; Typical
• Deviation per day, max.	60 s/month at 25 °C
Digital inputs	
Number of digital inputs	14; Integrated
 of which inputs usable for technological functions 	6; HSC (High Speed Counting)
Source/sink input	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 40 °C, max.	14
Input voltage	

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• Rated value (CC) 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) 6 for standard inputs 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", min. 0.2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs - - parameterizable Yes for technological functions - - parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length 500 m; 50 m for technological functions • shielded, max. 300 m; for technological functions • unshielded, max. 300 m; for technological functions • with resistive load, max. 30 W with DC, 200 W with AC Output delay with resistive load 0 • "0" to "1", max. 10 ms; max. • "1" to "1", max. 10 ms; max. • "0" to "1", max. 10 ms; max. • "0" to "1", max. 10 ms; max. • "0" to "1", max. 10 ms; max. • "1" to "1", max. 10 ms; max.		
i-for signal 11 15 V DC at 2.5 mA Input delay (for rated value of input voltage) 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	 Rated value (DC) 	24 V
Input delay (for rated value of input voltage) for standard inputs parameterizable selectable in groups of four at "0" to "1", min. at "0" to "1", max. parameterizable Yes for technological functions parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length • shielded, max. sold max. 300 m; 50 m for technological functions • unshielded, max. 300 m; 50 m for technological functions on namp load, max. 2 A • on lamp load, max. 2 A • on lamp load, max. 2 Output delay with resistive load, max. 0 '" to "1", max. 10 ms; max. • "1' to "0", max. 0 for the pulse outputs, with resistive load, max. 1 Hz Relay out	● for signal "0"	5 V DC at 1 mA
for standard inputs 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four - at "0" to "1", min. 0.2 ms - at "0" to "1", min. 0.2 ms - at "0" to "1", max. 12.8 ms for interrupt inputs - parameterizable - parameterizable Yes for technological functions	● for signal "1"	15 V DC at 2.5 mA
	Input delay (for rated value of input voltage)	
selectable in groups of four- at "0" to "1", min.0.2 ms- at "0" to "1", max.12.8 msfor interrupt inputsVes- parameterizableYesfor technological functionsSingle phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHzCable lengthSingle phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz• shielded, max.500 m; 50 m for technological functions• unshielded, max.500 m; 50 m for technological functions: NoDigital outputs10; RelaysNumber of digital outputs2 A• on lamp load, max.30 W with DC, 200 W with ACOutput delay with resistive load• "0" to "1", max.10 ms; max.• "0" to "1", max.10 ms; max.• "0" to "1", max.10 ms; max.• "1" to "0", max.11 ms; max.• "1" to "0", max.10 ms; max.• "1" to "0", max.500 m• unshielded, max.500 m• unshielded, max.500 m• unshielded, max.500 m• unshielded, max.150 m• to be pulse outputs150 m• unshielded, max.150 m• unshielded, max.150 m• unshielded, max.150 m• unshielded, max.150 m•	for standard inputs	
	— parameterizable	
for interrupt inputs	— at "0" to "1", min.	0.2 ms
— parameterizable Yes for technological functions Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length 500 m; 50 m for technological functions • shielded, max. 500 m; 50 m for technological functions • unshielded, max. 300 m; for technological functions: No Digital outputs 10; Relays Number of digital outputs 10; Relays Switching capacity of the outputs • (on lamp load, max. • with resistive load, max. 2 A • on lamp load, max. 30 W with DC, 200 W with AC Output delay with resistive load • (or 0* 0****, max. • "0* 0* 0****, max. 10 ms; max. • "0* 0* 0****, max. 10 ms; max. • switching frequency • • of the pulse outputs, with resistive load, max. 11 Hz Relay outputs 10 • Number of relay outputs 10 • Number of operating cycles, max. 500 m • unshielded, max. 500 m • unshielded, max. 150 m Analog inputs 2 • Number of analog inputs 2 • Voltage Yes	— at "0" to "1", max.	12.8 ms
for technological functions parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Cable length 500 m; 50 m for technological functions • unshielded, max. 500 m; 50 m for technological functions • unshielded, max. 300 m; for technological functions: No Digital outputs Number of digital outputs 10; Relays Switching capacity of the outputs • • with resistive load, max. 2 A • on lamp load, max. 30 W with DC, 200 W with AC Output delay with resistive load • • "0" to "1", max. 10 ms; max. • "1" to "0", max. 10 ms; max. • of the pulse outputs, with resistive load, max. 1 Hz Relay outputs 10 • Number of relay outputs 10 • Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000 Cable length 500 m • unshielded, max. 500 m • unshielded, max. 150 m • unshielded, max. 150 m • unshielded, max. 2 • outputs Yes Input ranges	for interrupt inputs	
— parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz Cable length . • shielded, max. 500 m; 50 m for technological functions • unshielded, max. 300 m; for technological functions: No Digital outputs . Number of digital outputs 10; Relays Switching capacity of the outputs . • with resistive load, max. 2 A • on lamp load, max. 30 W with DC, 200 W with AC Output delay with resistive load . • "0" to "1", max. 10 ms; max. • of the pulse outputs, with resistive load, max. 1 Hz Relay outputs . • of the pulse outputs, with resistive load, max. 1 Hz • of the pulse outputs, with resistive load, max. 1 Hz • of the pulse outputs, with resistive load, max. 1 Hz • Number of relay outputs 10 • Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000 Cable length . • shielded, max. 500 m • unshielded, max. 150 m • unshielded, max. 150 m	— parameterizable	Yes
kHz & 3 @ 30 kHz Cable length 500 m; 50 m for technological functions • unshielded, max. 300 m; for technological functions: No Digital outputs 300 m; for technological functions: No Digital outputs 10; Relays Switching capacity of the outputs 2 A • with resistive load, max. 2 A • on lamp load, max. 30 W with DC, 200 W with AC Output delay with resistive load 10 ms; max. • "0" to "1", max. 10 ms; max. • 1" to "0", max. 10 ms; max. • 1" to "0", max. 10 ms; max. • 1" to "0", max. 14 Hz Relay outputs 10 • Number of relay outputs 11 Hz Relay outputs 10 • Number of orlay outputs 10 • Number of orlay outputs 150 m • unshielded, max. 150 m • unshielded, max. 150 m • unshielded, max. 150 m • ot to +10 V Yes Input ranges Yes • ot to +10 V Yes • ot to +10 V	for technological functions	
 shielded, max. 500 m; 50 m for technological functions 300 m; for technological functions: No Digital outputs Number of digital outputs 10; Relays Switching capacity of the outputs with resistive load, max. 2 A on lamp load, max. 30 W with DC, 200 W with AC Output delay with resistive load "0" to "1", max. 01 ms; max. "1" to "0", max. 01 ms; max. "1" to "0", max. 01 ms; max. of the pulse outputs, with resistive load, max. thz Relay outputs Number of relay outputs 10 Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000 Cable length shielded, max. 500 m unshielded, max. 500 m Number of analog inputs Analog inputs Voltage Ves Input ranges (rated values), voltages 0 to +10 V Pinput ranges (rated values), voltages 0 to +10 V 2100k ohms 	— parameterizable	
• unshielded, max. 300 m; for technological functions: No Digital outputs 10; Relays Number of digital outputs 10; Relays Switching capacity of the outputs 2 A • with resistive load, max. 2 A • on lamp load, max. 30 W with DC, 200 W with AC Output delay with resistive load	Cable length	
Digital outputs 10; Relays Number of digital outputs 10; Relays Switching capacity of the outputs 2 A • with resistive load, max. 30 W with DC, 200 W with AC Output delay with resistive load - • 0° to "1", max. 10 ms; max. • 10° to "1", max. 10 ms; max. • 11° to "0", max. 10 ms; max. • 0f the pulse outputs, with resistive load, max. 1 Hz Relay outputs 1 • Number of relay outputs 10 • Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000 Cable length 500 m • shielded, max. 500 m • unshielded, max. 500 m • unshielded, max. 500 m • Voltage Yes Input ranges Yes • Voltage Yes Input ranges (rated values), voltages Yes • 0 to +10 V Yes - Input resistance (0 to 10 V) Yes <td>• shielded, max.</td> <td>500 m; 50 m for technological functions</td>	• shielded, max.	500 m; 50 m for technological functions
Number of digital outputs 10; Relays Switching capacity of the outputs 2 A • with resistive load, max. 2 A • on lamp load, max. 30 W with DC, 200 W with AC Output delay with resistive load ************************************	• unshielded, max.	300 m; for technological functions: No
Number of digital outputs 10; Relays Switching capacity of the outputs 2 A • with resistive load, max. 2 A • on lamp load, max. 30 W with DC, 200 W with AC Output delay with resistive load ************************************	Digital outputs	
Switching capacity of the outputs 2 A • with resistive load, max. 30 W with DC, 200 W with AC Output delay with resistive load		10: Relavs
• with resistive load, max. 2 A • on lamp load, max. 30 W with DC, 200 W with AC Output delay with resistive load 10 ms; max. • "0" to "1", max. 10 ms; max. • "1" to "0", max. 10 ms; max. Switching frequency 10 the pulse outputs, with resistive load, max. • of the pulse outputs, with resistive load, max. 1 Hz Relay outputs 10 • Number of relay outputs 10 • Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000 Cable length 500 m • shielded, max. 500 m • unshielded, max. 500 m • unshielded, max. 500 m • Unumber of analog inputs 2 Input ranges Voltage • Voltage Yes Input ranges (rated values), voltages Yes • 0 to +10 V Yes — Input resistance (0 to 10 V) ≥100k ohms		
• on lamp load, max.30 W with DC, 200 W with ACOutput delay with resistive load10 ms; max.• "0" to "1", max.10 ms; max.• "1" to "0", max.10 ms; max.Switching frequency1 Hz• of the pulse outputs, with resistive load, max.1 HzRelay outputs10• Number of relay outputs10• Number of operating cycles, max.mechanically 10 million, at rated load voltage 100 000Cable length500 m• shielded, max.500 m• unshielded, max.150 mNumber of analog inputs2Number of analog inputs2• VoltageYes• Input ranges (rated values), voltagesYes• 0 to +10 VYes- Input resistance (0 to 10 V)≥100k ohms		2 A
Output delay with resistive load 10 ms; max. • "0" to "1", max. 10 ms; max. • "1" to "0", max. 10 ms; max. Switching frequency 10 ms; max. • of the pulse outputs, with resistive load, max. 1 Hz Relay outputs 10 • Number of relay outputs 10 • Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000 Cable length 500 m • shielded, max. 500 m • unshielded, max. 150 m Analog inputs 2 Input ranges Yes • Voltage Yes Input ranges (rated values), voltages Yes • 0 to +10 V Yes - Input resistance (0 to 10 V) ≥100k ohms	● on lamp load, max.	30 W with DC, 200 W with AC
• "1" to "0", max.10 ms; max.Switching frequency1 Hz• of the pulse outputs, with resistive load, max.1 HzRelay outputs10• Number of relay outputs10• Number of operating cycles, max.mechanically 10 million, at rated load voltage 100 000Cable length500 m• shielded, max.500 m• unshielded, max.150 mNumber of analog inputs2Input rangesYes• VoltageYesInput ranges (rated values), voltagesYes• 0 to +10 VYes- Input resistance (0 to 10 V)≥100k ohms	Output delay with resistive load	
Switching frequency 1 Hz e of the pulse outputs, with resistive load, max. 1 Hz Relay outputs 10 • Number of relay outputs 10 • Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000 Cable length 500 m • shielded, max. 500 m • unshielded, max. 150 m Number of analog inputs 2 Input ranges Yes • Voltage Yes Input ranges (rated values), voltages Yes • 0 to +10 V Yes — Input resistance (0 to 10 V) ≥100k ohms	• "0" to "1", max.	10 ms; max.
● of the pulse outputs, with resistive load, max. 1 Hz Relay outputs 10 ● Number of relay outputs 10 ● Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000 Cable length 500 m ● shielded, max. 500 m ● unshielded, max. 150 m Analog inputs 2 Number of analog inputs 2 Input ranges Yes Input ranges (rated values), voltages Yes ● 0 to +10 V Yes — Input resistance (0 to 10 V) ≥100k ohms	• "1" to "0", max.	10 ms; max.
Relay outputs 10 • Number of relay outputs 10 • Number of operating cycles, max. mechanically 10 million, at rated load voltage 100 000 Cable length 500 m • shielded, max. 500 m • unshielded, max. 150 m Analog inputs 2 Number of analog inputs 2 Input ranges Yes • Voltage Yes Input ranges (rated values), voltages Yes • 0 to +10 V Yes — Input resistance (0 to 10 V) ≥100k ohms	Switching frequency	
• Number of relay outputs10• Number of operating cycles, max.mechanically 10 million, at rated load voltage 100 000Cable length• shielded, max.500 m• unshielded, max.150 mAnalog inputs2Number of analog inputs2Input rangesYes• VoltageYesInput ranges (rated values), voltagesYes• 0 to +10 VYes— Input resistance (0 to 10 V)≥100k ohms	 of the pulse outputs, with resistive load, max. 	1 Hz
• Number of operating cycles, max.mechanically 10 million, at rated load voltage 100 000Cable length500 m• shielded, max.500 m• unshielded, max.150 mAnalog inputsNumber of analog inputs2Input rangesYes• VoltageYesInput ranges (rated values), voltagesYes• 0 to +10 VYes— Input resistance (0 to 10 V)≥100k ohms	Relay outputs	
Cable length 500 m • shielded, max. 500 m • unshielded, max. 150 m Analog inputs 2 Number of analog inputs 2 Input ranges Yes Input ranges (rated values), voltages Yes • 0 to +10 V Yes — Input resistance (0 to 10 V) ≥100k ohms	 Number of relay outputs 	10
• shielded, max.500 m• unshielded, max.150 mAnalog inputs2Number of analog inputs2Input ranges2• VoltageYes• Number (rated values), voltagesYes• 0 to +10 VYes- Input resistance (0 to 10 V)≥100k ohms	 Number of operating cycles, max. 	mechanically 10 million, at rated load voltage 100 000
• unshielded, max.150 mAnalog inputs2Number of analog inputs2Input rangesYes• VoltageYesInput ranges (rated values), voltagesYes• 0 to +10 VYes— Input resistance (0 to 10 V)≥100k ohms	Cable length	
Analog inputs 2 Number of analog inputs 2 Input ranges 2 • Voltage Yes Input ranges (rated values), voltages Yes • 0 to +10 V Yes — Input resistance (0 to 10 V) ≥100k ohms	• shielded, max.	500 m
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	• unshielded, max.	150 m
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	Analog inputs	
• Voltage Yes Input ranges (rated values), voltages • 0 to +10 V • 0 to +10 V Yes — Input resistance (0 to 10 V) ≥100k ohms		2
Input ranges (rated values), voltages • 0 to +10 V Yes — Input resistance (0 to 10 V) ≥100k ohms	Input ranges	
• 0 to +10 V Yes — Input resistance (0 to 10 V) ≥100k ohms	Voltage	Yes
— Input resistance (0 to 10 V) ≥100k ohms	Input ranges (rated values), voltages	
	• 0 to +10 V	Yes
Cable length	— Input resistance (0 to 10 V)	≥100k ohms
	Cable length	

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• shielded, max.	100 m; twisted and shielded
Analog outputs	
Number of analog outputs	0
Angles value concretion for the inputs	
Analog value generation for the inputs Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign),	10 bit
max.	
 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
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	2
device, max.	
Protocols	
Supports protocol for PROFINET IO	Yes
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

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• UDP Yes Web server • • supported Yes • User-defined websites Yes Further protocols Yes • MODBUS Yes Communication functions Yes S7 communication Yes • supported Yes • supported Yes • as server Yes • as client Yes Number of connections Yes • overall 16; dynamically Test commissioning functions Yes Status/control Yes • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Yes Diagnostic buffer Yes • present Yes Traces 2; Up to 512 KB of data per trace are possible	
• supported Yes • User-defined websites Yes Further protocols Yes • MODBUS Yes Communication functions Yes S7 communication Yes • supported Yes • as server Yes • as client Yes Number of connections Yes • overall 16; dynamically Test commissioning functions Yes Status/control Yes • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Yes Diagnostic buffer Yes • present Yes	
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Further protocols • MODBUS Yes Communication functions S7 communication • supported Yes • as server Yes • as client Yes Number of connections Yes • overall 16; dynamically Test commissioning functions Status/control • Status/control Yes • Status/control variable Yes • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Yes Diagnostic buffer Yes • present Yes Traces Yes	
• MODBUS Yes Communication functions S7 communication • supported Yes • as server Yes • as client Yes Number of connections Yes • overall 16; dynamically Test commissioning functions Yes Status/control Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Yes 0 Forcing Yes Diagnostic buffer Yes • present Yes	
Communication functions S7 communication • supported • as server • as server • as client Yes Number of connections • overall 16; dynamically Test commissioning functions Status/control • Status/control variable • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing • Forcing Yes Diagnostic buffer • present Yes	
S7 communication Yes • supported Yes • as server Yes • as client Yes Number of connections Yes • overall 16; dynamically Test commissioning functions Yes Status/control Yes • Status/control variable Yes • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Yes Diagnostic buffer Yes • present Yes Traces Yes	
S7 communication Yes • supported Yes • as server Yes • as client Yes Number of connections Yes • overall 16; dynamically Test commissioning functions Yes Status/control Yes • Status/control variable Yes • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Yes Diagnostic buffer Yes • present Yes Traces Yes	
eas provideYes• as serverYes• as clientYesNumber of connections16; dynamically• overall16; dynamicallyTest commissioning functionsYesStatus/controlYes• Status/control variableYes• Status/control variablesInputs/outputs, memory bits, DBs, distributed I/Os, timers, countersForcingYes• ForcingYes• presentYes• presentYesTracesYes	
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Number of connections • overall 16; dynamically Test commissioning functions Status/control • Status/control variable Yes • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Yes • Forcing Yes Diagnostic buffer Yes • present Yes Traces Yes	_
• overall16; dynamicallyTest commissioning functionsStatus/control• Status/control variableYes• Status/control variablesInputs/outputs, memory bits, DBs, distributed I/Os, timers, counters• ForcingYes• ForcingYes• ForcingYes• ForcingYes• presentYes• presentYes• presentYes• presentYes	
• overall16; dynamicallyTest commissioning functionsStatus/control• Status/control variableYes• Status/control variablesInputs/outputs, memory bits, DBs, distributed I/Os, timers, counters• ForcingYes• ForcingYes• ForcingYes• ForcingYes• ForcingYes• presentYes• presentYes• presentYes	
Test commissioning functions Status/control • Status/control variable Yes • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Yes • Forcing Yes Diagnostic buffer Yes • present Yes Traces Yes	
Status/control Yes • Status/control variable Yes • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Yes • Forcing Yes Diagnostic buffer Yes • present Yes Traces Yes	
• Status/control variable Yes • Variables Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters Forcing Yes • Forcing Yes Diagnostic buffer Yes • present Yes Traces Yes	
• VariablesInputs/outputs, memory bits, DBs, distributed I/Os, timers, countersForcingForcing• ForcingYesDiagnostic bufferYes• presentYesTracesYes	
counters Forcing Yes • Forcing Yes Diagnostic buffer Yes • present Yes Traces Yes	
• Forcing Yes Diagnostic buffer Yes • present Yes Traces Yes	
Diagnostic buffer • present Yes Traces	
• present Yes Traces	
Traces	
• Number of configurable Traces 2; Up to 512 KB of data per trace are possible	
Integrated Functions	
Number of counters 6	
Counting frequency (counter) max. 100 kHz	
Frequency measurement Yes	
controlled positioning Yes	
Number of position-controlled positioning axes, max. 8	
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	
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 electri	city
 Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 	Yes
— Test voltage at air discharge	8 kV
— Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	
 Interference immunity on supply lines acc. to IEC 61000-4-4 	Yes
 Interference immunity on signal cables acc. to IEC 61000-4-4 	Yes
Interference immunity against voltage surge	
 Interference immunity on supply lines acc. to IEC 61000-4-5 	Yes
Interference immunity against conducted variable distur	bance induced by high-frequency fields
 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 	Yes
Emission of radio interference acc. to EN 55 011	
 Limit class A, for use in industrial areas 	Yes; Group 1
 Limit class B, for use in residential areas 	Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011
Degree and class of protection	
IP degree of protection	IP20
Ambient conditions	
Free 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.	70 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 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 (no adjacent points) with horizontal mounting position
• At cold restart, min.	-25 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
Installation altitude above sea level, max.	2 000 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); above 2 000 m max. 132 V AC



Relative humidity	
 With condensation, tested in accordance with 	100 %; RH incl. condensation/frost (no commissioning under
IEC 60068-2-38, max.	condensation conditions)
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 60068-2-27 	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 	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
 — to chemically active substances according to EN 60721-3-3 	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2- 52 (severity degree 3); *
 — to mechanically active substances according to EN 60721-3-3 	Yes; Class 3S4 incl. sand, dust, *
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 	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2- 52 (severity degree 3); *
 — to mechanically active substances according to EN 60721-3-6 	Yes; Class 6S3 incl. sand, 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	
Programming	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
Cycle time monitoring	
• adjustable	Yes
Dimensions	
Width	110 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	435 g
last modified:	10/13/2020

