SIEMENS

Data sheet



coating based on 6ES7214-1AG40-0XB0 signal board usable. compact CPU, "DC/DC/DC, onboard I/O: ""14 DI" "24 V DC; 10 DO 24 V DC;"" 2 AI" 0-10 V DC, Power supply: DC 20.4-28.8V DC, Program/data memory 100 KB

SIPLUS S7-1200 CPU 1214C DC/DC/DC -40...+60°C with conformal

rigore similar

Product type designation Supply voltage Rated value (DC) • 24 V DC permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Load voltage L+ • Rated value (DC) • permissible range, lower limit (DC) permissible range, lower limit (DC) • pe	General information	
Rated value (DC) • 24 V DC permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Load voltage L+ • Rated value (DC) • permissible range, lower limit (DC) 24 V • permissible range, lower limit (DC) • permissible range, lower limit (DC) • permissible range, lower limit (DC) • permissible range, upper limit (DC) 28.8 V Input current Current consumption (rated value) Current consumption, max. 1 500 mA; CPU only Current consumption, max. 1 2 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 encoder supply • 24 V L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory • integrated • expandable No Load memory • integrated • Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card Backup • present • yres; maintenance-free yes CPU processing times for bit operations, typ. 0.085 µs; / instruction	Product type designation	CPU 1214C DC/DC/DC
• 24 V DC Yes permissible range, lower limit (DC) 20.4 V permissible range, upper limit (DC) 28.8 V Reverse polarity protection Yes Load voltage L+	Supply voltage	
permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Permissible range, upper limit (DC) Permissible range, lower limit (DC) Permissible range, lower limit (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Permissible range, lower limit (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Power onsumption (rated value) Power onsumption (rated value) Power loss Power loss (5 V DC), max. Power loss Power loss, typ. Power loss Power loss, typ. Power loss, typ. Power loss, typ. Power loss Power loss, typ. Pow	Rated value (DC)	
permissible range, upper limit (DC) Reverse polarity protection Yes Load voltage L+ Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) 28.8 V Input current Current consumption (rated value) Current consumption, max. 1 500 mA; CPU only Current consumption, max. 1 500 mA; CPU with all expansion modules Inrush current, max. 1 600 mA; Max. 5 V DC for SM and CM Encoder supply 24 V encoder supply 24 V encoder supply 24 V encoder supply 12 W Memory Work memory integrated power loss Power loss, typ. 100 kbyte peapandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card Backup present without battery Yes; maintenance-free yes CPU processing times for bit operations, typ. 0.085 µs; / instruction	• 24 V DC	Yes
Reverse polarity protection Load voltage L+ Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) 28.8 V Input current Current consumption (rated value) Current consumption, max. 1 500 mA; CPU only Current consumption, max. 1 2 A; at 28.8 V DC Output current for backplane bus (6 V DC), max. 1 600 mA; Max. 5 V DC for SM and CM Encoder supply 24 V encoder supply 24 V encoder supply 24 V encoder supply 24 V encoder supply 26 V UL+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory integrated perpended publication (SIMATIC Memory Card), max. Backup present present present present present present present prese vithout battery CPU processing times for bit operations, typ. 0.085 µs; / instruction	permissible range, lower limit (DC)	20.4 V
Load voltage L+ Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) 28.8 V Input current Current consumption (rated value) Current consumption, max. 1500 mA; CPU only Current consumption, max. 1200 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. 1600 mA; Max. 5 V DC for SM and CM Encoder supply 24 V 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	permissible range, upper limit (DC)	28.8 V
• Rated value (DC) • permissible range, lower limit (DC) • permissible range, upper limit (DC) • permissible range, upper limit (DC) 28.8 V Input current Current consumption (rated value) Current consumption, max. 1 500 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	Reverse polarity protection	Yes
permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) 28.8 V proverent consumption (rated value) Current consumption, max. 1 500 mA; CPU only Current consumption, max. 1 2 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 encoder supply 24 V w L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present without battery Yes; maintenance-free without battery CPU processing times for bit operations, typ. 0.085 µs; / instruction	Load voltage L+	
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Input current Current consumption (rated value) Current consumption, max. 1 500 mA; CPU with all expansion modules Inrush current, max. 1 2 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 expandable expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card Backup e present without battery Yes; maintenance-free without battery CPU processing times for bit operations, typ. 1 500 mA; CPU with all expansion modules 1 500 mA; CPU only 1 500 mA; CPU only 1 500 mA; CPU with all expansion modules 1 500 mA; CPU only 1 100 mA; CPU only 1 500 mA; CPU o	 permissible range, lower limit (DC) 	20.4 V
Current consumption (rated value) Current consumption, max. Inrush current, max. 12 A; at 28.8 V DC Output current for backplane bus (5 V DC), max. Inrush current, 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 • expandable Load memory • integrated • Plug-in (SIMATIC Memory Card), max. Backup • present • without battery Yes; maintenance-free • without battery For bit operations, typ. 0.085 µs; / instruction	 permissible range, upper limit (DC) 	28.8 V
Current consumption, max. Inrush current, max. 12 A; at 28.8 V DC Output current for backplane bus (5 V DC), max. Inrush current for backplane bus (5 V DC), max. Inrush current for backplane bus (5 V DC), max. Inrush current for backplane bus (5 V DC), max. Inrush current I	Input current	
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for backplane bus (5 V DC), max. 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 • expandable Load memory • integrated • Plug-in (SIMATIC Memory Card), max. Backup • present • without battery for bit operations, typ. 1 600 mA; Max. 5 V DC for SM and CM 2 600 ma; Max. 5 V DC for SM and CM 2 600 ma; Max. 5 V DC for SM and CM 2 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Current consumption, max.	1 500 mA; CPU with all expansion modules
for backplane bus (5 V DC), max. Encoder supply 24 V encoder supply • 24 V	Inrush current, max.	12 A; at 28.8 V DC
Encoder supply 24 V encoder supply • 24 V	Output current	
24 V encoder supply 24 V L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present present with out battery Yes; maintenance-free without battery for bit operations, typ. 12 W Memory 12 W Memory 4 W byte with SIMATIC memory card Yes; maintenance-free Yes CPU processing times for bit operations, typ.	for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
● 24 V Power loss Power loss, typ. 12 W Memory Work memory ● integrated ● expandable Load memory ● integrated ● Plug-in (SIMATIC Memory Card), max. Backup ● present ● without battery CPU processing times for bit operations, typ. 12 W No 100 kbyte 100 kbyte No 4 Mbyte No 24 Mbyte 4 Mbyte 4 With SIMATIC memory card Yes; maintenance-free Yes CPU processing times 100 kbyte	Encoder supply	
Power loss Power loss, typ. 12 W Memory Work memory integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present without battery Yes; maintenance-free without battery Yes CPU processing times for bit operations, typ. 12 W Memory 4 Mbyte No Very maintenance-free Yes; maintenance-free Yes Ves; maintenance-free	24 V encoder supply	
Power loss, typ. Memory Work memory integrated expandable Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present expresent exprese	• 24 V	L+ minus 4 V DC min.
Memory Work memory integrated expandable Load memory integrated integrated Plug-in (SIMATIC Memory Card), max. Backup present present with out battery CPU processing times for bit operations, typ. 100 kbyte No 4 Mbyte kind SIMATIC memory card Yes; maintenance-free Yes O.085 µs; / instruction	Power loss	
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 integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present with SIMATIC memory card Backup Operations, typ. 100 kbyte No 4 Mbyte with SIMATIC memory card Yes; maintenance-free without battery Yes CPU processing times for bit operations, typ. 0.085 µs; / instruction 	Memory	
 expandable Load memory integrated Plug-in (SIMATIC Memory Card), max. backup present with SIMATIC memory card Yes; maintenance-free without battery CPU processing times for bit operations, typ. 0.085 µs; / instruction 	Work memory	
Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present with SIMATIC memory card Yes; maintenance-free without battery Yes CPU processing times for bit operations, typ. 0.085 µs; / instruction	• integrated	100 kbyte
 integrated Plug-in (SIMATIC Memory Card), max. Backup present with out battery CPU processing times for bit operations, typ. 4 Mbyte with SIMATIC memory card Yes; maintenance-free Yes O.085 µs; / instruction 	expandable	No
 Plug-in (SIMATIC Memory Card), max. Backup present with SIMATIC memory card Yes; maintenance-free without battery Yes CPU processing times for bit operations, typ. 0.085 µs; / instruction 	Load memory	
Backup	integrated	4 Mbyte
 present without battery CPU processing times for bit operations, typ. 0.085 μs; / instruction 	 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
 without battery CPU processing times for bit operations, typ.	Backup	
CPU processing times for bit operations, typ. 0.085 µs; / instruction	• present	Yes; maintenance-free
for bit operations, typ. 0.085 µs; / instruction	without battery	Yes
	CPU processing times	
for word operations, typ. 1.7 µs; / instruction	for bit operations, typ.	0.085 μs; / instruction
	for word operations, typ.	1.7 μs; / instruction

for floating point arithmetic, typ. 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 entire working memory can be used Number, max. Limited only by RAM for code Number, max. Limited only by RAM for code Size, max. Local data Size, max. Local data Per priority class, max. Local data In purple, adjustable Outputs, adjustable Outputs, adjustable Address area Process image Inputs, adjustable Outputs, adjustable Address area Process image Inputs, adjustable Outputs, adjustable Address area Process image Inputs, adjustable Outputs, adjustable Outputs, adjustable Address area Process image Inputs, adjustable Outputs, adjustable Outputs, adjustable Address area Process image Inputs, adjustable Outputs, adjustable Outputs, adjustable Outputs, adjustable Outputs, adjustable I kbyte Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Backup time Outputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. 14	
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 entire working memory can be used DBs Number, max. Limited only by RAM for code Limited areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Size, max. Local data per priority class, max. Local data per priority class, max. Local data process image Inputs, adjustable Outputs, adjustable Outputs, adjustable Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max. Digital inputs Number of digital inputs Number of digital inputs Number of simultaneously controllable inputs all mounting positions	
addressable blocks ranges from 1 to 65535. There is no restriction entire working memory can be used • Number, max. Limited only by RAM for code Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag • Size, max. Local data • per priority class, max. 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to KB Address area Process image • Inputs, adjustable • Outputs, adjustable • Outputs, adjustable 1 kbyte Hardware configuration Number of modules per system, max. 7 ime of day Clock • Hardware clock (real-time) • Backup time • Deviation per day, max. Number of digital inputs Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions	
● Number, max. Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag ● Size, max. Local data ● per priority class, max. Address area Process image ● Inputs, adjustable ● Outputs, adjustable ● Outputs, adjustable I kbyte Hardware configuration Number of modules per system, max. Time of day Clock ● Hardware clock (real-time) ● Backup time ● Deviation per day, max. Digital inputs Number of digital inputs ● of which inputs usable for technological functions Source/s/sink input Number of simultaneously controllable inputs all mounting positions	26: 6
Retentive data area (incl. timers, counters, flags), max. Flag • Size, max. Local data • per priority class, max. Address area Process image • Inputs, adjustable • Outputs, adjustable • Tkbyte • Outputs, adjustable • Hardware configuration Number of modules per system, max. Time of day Clock • Hardware clock (real-time) • Backup time • Deviation per day, max. Digital inputs Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions	26: 6
Retentive data area (incl. timers, counters, flags), max. Flag Size, max. Local data per priority class, max. Address area Process image Inputs, adjustable Outputs, adjustable Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max. Digital inputs Outputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions 10 kbyte 8 kbyte; Size of bit memory address area 8 kbyte; Size of bit memory address area 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to KB 1 kbyte 1 kby	26: 6
Flag ● Size, max. Local data ● per priority class, max. Address area Process image ● Inputs, adjustable ● Outputs, adjustable ● Outputs, adjustable I kbyte ● Outputs, adjustable Hardware configuration Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Time of day Clock ● Hardware clock (real-time) ● Backup time ● Deviation per day, max. Digital inputs Number of digital inputs ● of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions	26: 6
Size, max. B 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 KB Address area Process image Inputs, adjustable Outputs, adjustable Rardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max. Number of digital inputs Number of digital inputs Number of digital inputs Of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions	26: 6
Local data • per priority class, max. 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to KB Address area Process image • Inputs, adjustable • Outputs, adjustable 1 kbyte Hardware configuration Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Time of day Clock • Hardware clock (real-time) • Backup time • Deviation per day, max. Digital inputs Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions	26: 6
Per priority class, max. 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to KB Address area Process image • Inputs, adjustable • Outputs, adjustable • Outputs, adjustable 1 kbyte Hardware configuration Number of modules per system, max. 7 ime of day Clock • Hardware clock (real-time) • Backup time • Deviation per day, max. Digital inputs Number of digital inputs Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions	26: 6
Address area Process image Inputs, adjustable Outputs, adjustable Outputs, adjustable I kbyte Hardware configuration Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Time of day Clock Hardware clock (real-time) Backup time Backup time Deviation per day, max. Number of digital inputs Number of digital inputs Number of digital inputs Of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions	26: 6
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Process image Inputs, adjustable Outputs, adjustable It kbyte Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max. Number of digital inputs Number of digital inputs Number of digital inputs Number of simultaneously controllable inputs all mounting positions	
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Outputs, adjustable Hardware configuration Number of modules per system, max. 3 comm. modules, 1 signal board, 8 signal modules Time of day Clock Hardware clock (real-time) Backup time A80 h; Typical Deviation per day, max. Digital inputs Number of digital inputs Source/sink input Number of simultaneously controllable inputs all mounting positions 1 kbyte 1 klyte 4 80 n; Typical 60 s/month at 25 °C Digital inputs 14; Integrated 6; HSC (High Speed Counting) Yes	
Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max. Number of digital inputs Number of digital inputs Number of simultaneously controllable inputs all mounting positions 3 comm. modules, 1 signal board, 8 signal modules Yes 480 h; Typical 60 s/month at 25 °C 14; Integrated 6; HSC (High Speed Counting) Yes	
Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max. Number of digital inputs Number of digital inputs of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions 3 comm. modules, 1 signal board, 8 signal modules Yes 480 h; Typical 60 s/month at 25 °C 14; Integrated 6; HSC (High Speed Counting) Yes	
Time of day Clock	
Clock Hardware clock (real-time) Backup time Deviation per day, max. Digital inputs Number of digital inputs Of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions Yes 480 h; Typical 60 s/month at 25 °C 14; Integrated 6; HSC (High Speed Counting) Yes	
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Digital inputs Number of digital inputs of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions 14; Integrated 6; HSC (High Speed Counting) Yes	
Number of digital inputs of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions 14; Integrated 6; HSC (High Speed Counting) Yes	
 of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions 6; HSC (High Speed Counting) Yes 	
 of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions 6; HSC (High Speed Counting) Yes 	
Source/sink input Yes Number of simultaneously controllable inputs all mounting positions	
Number of simultaneously controllable inputs all mounting positions	
all mounting positions	
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, selection	able
in groups of four	
— at "0" to "1", min. 0.2 ms	
— at "0" to "1", max.	
for interrupt inputs	
— parameterizable Yes	
for technological functions	
— parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz	& 3
@ 30 kHz	
Cable length	
• shielded, max. 500 m; 50 m for technological functions	
• unshielded, max. 300 m; for technological functions: No	
Digital outputs	
Number of digital outputs 10	
of which high-speed outputs 4; 100 kHz Pulse Train Output	
Limitation of inductive shutdown voltage to L+ (-48 V)	
Switching capacity of the outputs	
• with resistive load, max. 0.5 A	
• on lamp load, max. 5 W	
● on lamp load, max. 5 W Output voltage	

Output current	0.5.4
• for signal "1" rated value	0.5 A
• for signal "0" residual current, max.	0.1 mA
Output delay with resistive load	,
• "0" to "1", max.	1 µs
• "1" to "0", max.	5 μs
Switching frequency	400 111
of the pulse outputs, with resistive load, max.	100 kHz
Relay outputs	
Number of relay outputs	0
Cable length	500 ···
• 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	
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
(per ename)	5_5 p.5
Encoder	
Encoder	Yes
Encoder Connectable encoders • 2-wire sensor	
Encoder Connectable encoders • 2-wire sensor 1. Interface	Yes
Encoder Connectable encoders • 2-wire sensor 1. Interface Isolated	Yes
Encoder Connectable encoders • 2-wire sensor 1. Interface Isolated automatic detection of transmission rate	Yes Yes Yes
Encoder Connectable encoders • 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation	Yes Yes Yes Yes Yes
Encoder Connectable encoders • 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing	Yes Yes Yes
Encoder Connectable encoders • 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types	Yes Yes Yes Yes Yes Yes Yes
Encoder Connectable encoders • 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing	Yes Yes Yes Yes Yes
Encoder Connectable encoders • 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols	Yes Yes Yes Yes Yes Yes Yes
Encoder Connectable encoders • 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols • PROFINET IO Controller	Yes Yes Yes Yes Yes Yes Yes Yes
Encoder Connectable encoders • 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols • PROFINET IO Controller • PROFINET IO Device	Yes Yes Yes Yes Yes Yes Yes
Encoder Connectable encoders 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types RJ 45 (Ethernet) Protocols PROFINET IO Controller PROFINET IO Device PROFINET IO Controller	Yes Yes Yes Yes Yes Yes Yes Yes Yes
Encoder Connectable encoders • 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols • PROFINET IO Controller • PROFINET IO Device PROFINET IO Controller • Transmission rate, max.	Yes Yes Yes Yes Yes Yes Yes Yes
Encoder Connectable encoders • 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols • PROFINET IO Controller • PROFINET IO Device PROFINET IO Controller • Transmission rate, max. Services	Yes Yes Yes Yes Yes Yes Yes Yes Yes Y
Encoder Connectable encoders • 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols • PROFINET IO Controller • PROFINET IO Device PROFINET IO Controller • Transmission rate, max. Services — Number of connectable IO Devices, max.	Yes Yes Yes Yes Yes Yes Yes Yes Yes
Encoder Connectable encoders 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types RJ 45 (Ethernet) Protocols PROFINET IO Controller PROFINET IO Device PROFINET IO Controller Transmission rate, max. Services Number of connectable IO Devices, max. PROFINET IO Device	Yes Yes Yes Yes Yes Yes Yes Yes Yes Y
Encoder Connectable encoders 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types RJ 45 (Ethernet) Protocols PROFINET IO Controller PROFINET IO Device PROFINET IO Controller Transmission rate, max. Services — Number of connectable IO Devices, max. PROFINET IO Device Services	Yes Yes Yes Yes Yes Yes Yes Yes 100 Mbit/s
Encoder Connectable encoders 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types RJ 45 (Ethernet) Protocols PROFINET IO Controller PROFINET IO Device PROFINET IO Controller Transmission rate, max. Services Number of connectable IO Devices, max. PROFINET IO Device Services Services Services Services	Yes Yes Yes Yes Yes Yes Yes Yes 100 Mbit/s 16
Encoder Connectable encoders 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types RJ 45 (Ethernet) Protocols PROFINET IO Controller PROFINET IO Device PROFINET IO Controller Transmission rate, max. Services — Number of connectable IO Devices, max. PROFINET IO Device Services	Yes Yes Yes Yes Yes Yes Yes Yes 100 Mbit/s
Encoder Connectable encoders 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types RJ 45 (Ethernet) Protocols PROFINET IO Controller PROFINET IO Device PROFINET IO Controller Transmission rate, max. Services Number of connectable IO Devices, max. PROFINET IO Device Services Services Services Services Services Services Services Services Number of IO Controllers with shared device,	Yes Yes Yes Yes Yes Yes Yes Yes 100 Mbit/s 16
Encoder Connectable encoders • 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols • PROFINET IO Controller • PROFINET IO Device PROFINET IO Controller • Transmission rate, max. Services — Number of connectable IO Devices, max. PROFINET IO Device Services — Shared device — Number of IO Controllers with shared device, max. Protocols	Yes Yes Yes Yes Yes Yes Yes Yes 100 Mbit/s 16
Encoder Connectable encoders 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types RJ 45 (Ethernet) Protocols PROFINET IO Controller PROFINET IO Device PROFINET IO Controller Transmission rate, max. Services — Number of connectable IO Devices, max. PROFINET IO Device Services — Number of IO Controllers with shared device, max. Protocols Supports protocol for PROFINET IO	Yes Yes Yes Yes Yes Yes Yes Yes Yes
Encoder Connectable encoders 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types RJ 45 (Ethernet) Protocols PROFINET IO Controller PROFINET IO Device PROFINET IO Controller Transmission rate, max. Services Number of connectable IO Devices, max. PROFINET IO Device Services Services Services Services Number of IO Controllers with shared device, max. Protocols Supports protocol for PROFINET IO PROFIBUS	Yes Yes Yes Yes Yes Yes Yes Yes Yes
Encoder Connectable encoders 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types RJ 45 (Ethernet) Protocols PROFINET IO Controller PROFINET IO Device PROFINET IO Controller Transmission rate, max. Services Number of connectable IO Devices, max. PROFINET IO Device Services Services Services Number of IO Controllers with shared device, max. Protocols Supports protocol for PROFINET IO PROFIBUS AS-Interface	Yes Yes Yes Yes Yes Yes Yes Yes Yes
Encoder Connectable encoders 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types RJ 45 (Ethernet) Protocols PROFINET IO Controller PROFINET IO Device PROFINET IO Controller Transmission rate, max. Services Number of connectable IO Devices, max. PROFINET IO Device Services Services Services Services Number of IO Controllers with shared device, max. Protocols Supports protocol for PROFINET IO PROFIBUS	Yes Yes Yes Yes Yes Yes Yes Yes Yes
Encoder Connectable encoders 2-wire sensor 1. Interface Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types RJ 45 (Ethernet) Protocols PROFINET IO Controller PROFINET IO Device PROFINET IO Controller Transmission rate, max. Services Number of connectable IO Devices, max. PROFINET IO Device Services Services Number of IO Controllers with shared device, max. Protocols Supports protocol for PROFINET IO PROFIBUS AS-Interface Protocols (Ethernet)	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes 100 Mbit/s 16 Yes 2

• TCP/IP	Yes
ISO-on-TCP (RFC1006)	Yes
• UDP	Yes
Web server	
supported	Yes
 User-defined websites 	Yes
Further protocols	
• MODBUS	Yes
Communication functions	
S7 communication	
• supported	Yes
	Yes
as serveras client	Yes
	TES
Number of connections	40
• overall	16; dynamically
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
Traces	
Number of configurable Traces	2; Up to 512 KB of data per trace are possible
Integrated Functions	2, op to 0.2 1.2 or data por trace are possible
	Vac
Frequency measurement	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction interface	4; With integrated DO
PID controller	Yes
Number of alarm inputs	4
Number of pulse outputs	4
Limit frequency (pulse)	100 kHz
Potential separation	
Potential separation digital inputs	
Potential separation digital inputs	500V AC for 1 minute
 between the channels, in groups of 	1
Potential separation digital outputs	
Potential separation digital outputs	Yes
between the channels	No
between the channels, in groups of	1
7 0 1	·
EMC	
Interference immunity against discharge of static electricity	
 Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 	Yes
 Test voltage at air discharge 	8 kV
Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	
 Interference immunity on supply lines acc. to IEC 61000-4-4 	Yes
 Interference immunity on signal cables acc. to IEC 61000-4-4 	Yes
Interference immunity against voltage surge	
Interference immunity on supply lines acc. to IEC 61000-4-5	Yes
Interference immunity against conducted variable disturbance	e induced by high-frequency fields
Interference immunity against conducted variable disturbance Interference immunity against high-frequency	Yes
radiation acc. to IEC 61000-4-6	165

Emission of radio interference acc. to EN 55 011	
Limit class A, for use in industrial areas	Yes; Group 1
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
Carrie Glass B, for use in residential areas	the limits for Class B according to EN 55011
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.	60 °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
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. 	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/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	V 01 004 (DII - 75 0/) : 1 1/
EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
EN 60721-3-3 — to mechanically active substances according to EN 60721-3-3	
— to mechanically active substances according to	(severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	(severity degree 3); *
to mechanically active substances according to EN 60721-3-3 Use on ships/at sea to biologically active substances according to	(severity degree 3); * Yes; Class 3S4 incl. sand, dust, * Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on
to mechanically active substances according to EN 60721-3-3 Use on ships/at sea to biologically active substances according to EN 60721-3-6 to chemically active substances according to	(severity degree 3); * Yes; Class 3S4 incl. sand, dust, * Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52
— to mechanically active substances according to EN 60721-3-3 Use on ships/at sea — to biologically active substances according to EN 60721-3-6 — to chemically active substances according to EN 60721-3-6 — to mechanically active substances according to en to mechanically active substances according to entered to mechanically active substances.	(severity degree 3); * Yes; Class 3S4 incl. sand, dust, * Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3 Use on ships/at sea — to biologically active substances according to EN 60721-3-6 — to chemically active substances according to EN 60721-3-6 — to mechanically active substances according to EN 60721-3-6	(severity degree 3); * Yes; Class 3S4 incl. sand, dust, * Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3 Use on ships/at sea — to biologically active substances according to EN 60721-3-6 — to chemically active substances according to EN 60721-3-6 — to mechanically active substances according to EN 60721-3-6 Usage in industrial process technology — Against chemically active substances acc. to	(severity degree 3); * Yes; Class 3S4 incl. sand, dust, * Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request 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 60721-3-3 Use on ships/at sea — to biologically active substances according to EN 60721-3-6 — to chemically active substances according to EN 60721-3-6 — to mechanically active substances according to EN 60721-3-6 Usage in industrial process technology — Against chemically active substances acc. to EN 60654-4 — Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-	(severity degree 3); * Yes; Class 3S4 incl. sand, dust, * Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * Yes; Class 6S3 incl. sand, dust; * Yes; Class 3 (excluding trichlorethylene) Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible);
— to mechanically active substances according to EN 60721-3-3 Use on ships/at sea — to biologically active substances according to EN 60721-3-6 — to chemically active substances according to EN 60721-3-6 — to mechanically active substances according to EN 60721-3-6 Usage in industrial process technology — Against chemically active substances acc. to EN 60654-4 — Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	(severity degree 3); * Yes; Class 3S4 incl. sand, dust, * Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * Yes; Class 6S3 incl. sand, dust; * Yes; Class 3 (excluding trichlorethylene) Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible);
 to mechanically active substances according to EN 60721-3-3 Use on ships/at sea to biologically active substances according to EN 60721-3-6 to chemically active substances according to EN 60721-3-6 to mechanically active substances according to EN 60721-3-6 Usage in industrial process technology Against chemically active substances acc. to EN 60654-4 Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 Remark Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and 	(severity degree 3); * Yes; Class 3S4 incl. sand, dust, * Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * Yes; Class 6S3 incl. sand, dust; * Yes; Class 3 (excluding trichlorethylene) 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) * The supplied plug covers must remain in place over the unused
— to mechanically active substances according to EN 60721-3-3 Use on ships/at sea — to biologically active substances according to EN 60721-3-6 — to chemically active substances according to EN 60721-3-6 — to mechanically active substances according to EN 60721-3-6 Usage in industrial process technology — Against chemically active substances acc. to EN 60654-4 — Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 Remark — Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	(severity degree 3); * Yes; Class 3S4 incl. sand, dust, * Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * Yes; Class 6S3 incl. sand, dust; * Yes; Class 3 (excluding trichlorethylene) 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) * The supplied plug covers must remain in place over the unused

• Military testing according to MIL-I-46058C, Amendment 7

 Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A Yes; Discoloration of coating possible during service life

Yes; Conformal coating, Class A

according to it of occurry	
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.	415 g

3/2/2021

last modified: