## **SIEMENS**

## **Data sheet**



SIPLUS S7-1200 CPU 1214C AC/DC/relay based on 6ES7214-1BG40-0XB0 with conformal coating, -40...+60 °C, start up -25 °C, compact CPU, AC/DC/relay, onboard I/O: 14 DI 24 V DC; 10 DQ relay 2 A; 2 AI 0-10 V DC, power supply: AC 85-264 V AC @ 47-63 Hz, program/data memory 100 KB

Figure similar

Product type designation   CPU 1214C AC/IDC/relay	General information	
Engineering with  • STEP 7 TIA Portal configurable/integrated from version  Supply votigoe  Rated value (AC)  • 120 V AC  • 230 V AC  permissible range, lower limit (AC)  • permissible range, lower limit (AC)  • permissible range, lower limit (AC)  • permissible range, lower limit  63 Hz  Imput current  Current consumption (rated value)  Current consumption (rated value)  100 mA at 120 V AC; 50 mA at 240 V AC  Inrush current, max.  20 A; at 264 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  • 25 V encoder supply  • 26 V encoder supply  • 27 V encoder supply  • 28 V encoder supply  • 29 V encoder supply  • 29 V encoder supply  • 29 V encoder supply  • 20 V enc	Product type designation	CPU 1214C AC/DC/relay
• STEP 7 TIA Portal configurable/integrated from version  Supply voltage  Rated value (AC)  • 120 V AC  • 230 V AC  permissible range, lower limit (AC)  permissible range, upper limit (AC)  • Permissible range, upper limit (AC)  perm	Firmware version	V4.1
Rated value (AC)  • 120 V AC  • 230 V AC  • 230 V AC  permissible range, lower limit (AC)  permissible range, lower limit (AC)  permissible range, lower limit (AC)  • 264 V  Line frequency  • permissible range, lower limit  • permissible range, upper limit  for berndissible range, upper limit  Current consumption (rated value)  Current consumption (rated value)  Current consumption, max.  300 mA at 120 V AC; 50 mA at 240 V AC  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  20.4 to 28.8V  Power loss  Power loss, typ.  Memory  • integrated  100 kbyte  Load memory  • integrated  100 kbyte  Load memory  • integrated  • Plug-in (SIMATIC Memory Card), max.  with SIMATIC memory card  Backup  • present  • without battery  Yes; maintenance-free  • without battery  Yes  CPU processing times  for bit operations, typ.  for floating point arithmetic, typ.  2.3 ps; / instruction  for for floating point arithmetic, typ.  2.3 ps; / instruction  for floating point arithmetic, typ.  2.3 ps; / instruction  for floating point arithmetic, typ.  2.3 ps; / instruction	Engineering with	
Rated value (AC)  • 120 V AC  • 120 V AC  • 230 V AC  Permissible range, lower limit (AC)  permissible range, upper limit (AC)  permissible range, upper limit (AC)  • 264 V  Line frequency  • permissible range, lower limit  • permissible range, lower limit  • permissible range, upper limit  63 Hz  Input current  Current consumption (rated value)  Current consumption (rated value)  100 mA at 120 V AC; 50 mA at 240 V AC  Current consumption, max.  300 mA at 120 V AC; 150 mA at 240 V AC  Inrush current, max.  20 A; at 264 V  Output current  for backplane bus (6 V DC), max.  1 600 mA; Max. 5 V DC for SM and CM  Encoder supply  24 V 20.4 to 28.8V  Power loss, typ.  Power loss, typ.  14 W  Memory  Work memory  • integrated  100 kbyte  Load memory  • integrated  100 kbyte  Load memory  • integrated  4 Mbyte  • Plug-in (SIMATIC Memory Card), max.  with SIMATIC memory card  Backup  • present  • without battery  Yes; maintenance-free  • without battery  Yes  CPU processing times  for bit operations, typ.  1.7 µs, / instruction  for word operations, typ.  for floating point arithmetic, typ.  2.3 µs; / instruction  for ford operations, typ.  for floating point arithmetic, typ.  2.3 µs; / instruction  for floating point arithmetic, typ.  2.3 µs; / instruction	<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	see entry ID: 109746275
• 120 V AC  • 230 V AC  • 230 V AC  • 230 V AC  • 230 V AC  Permissible range, lower limit (AC)  permissible range, upper limit (AC)  permissible range, upper limit (AC)  • Dum A at 120 V AC; 50 mA at 240 V AC  • Lorent consumption, max. (AC)  • Dum A at 120 V AC; 50 mA at 240 V AC  • Lorent consumption, max. (AC)  • Duput current  • for backplane bus (5 V DC), max. (AC)  • 1 600 mA; Max. 5 V DC for SM and CM  • Prower loss  • 24 V (AC)  • 20.4 to 28.8V  • Power loss  • Power loss, typ. (AC)  • Integrated (AC)  • Integrated (AC)  • Integrated (AC)  • Plug-in (SIMATIC Memory Card), max. (AC)  • Plug-in (SIMATIC Memory Card), max. (AC)  • Present (AC	Supply voltage	
• 230 V AC  permissible range, lower limit (AC)  permissible range, upper limit (AC)  Line frequency  • permissible range, lower limit  • permissible range, upper limit  63 Hz  Input current  Current consumption (rated value)  100 mA at 120 V AC; 50 mA at 240 V AC  Current consumption, max.  300 mA at 120 V AC; 150 mA at 240 V AC  Inrush current, max.  20 A; at 264 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 20.4 to 28.8V  Power loss, typ.  14 W  Memory  Work memory  • integrated  100 kbyte  Load memory  • integrated  4 Mbyte  • Plug-in (SIMATIC Memory Card), max.  with SIMATIC memory card  Backup  • present  • without battery  Yes; maintenance-free  • without battery  for bid operations, typ.  1.7 µs; / instruction  for word operations, typ.  for floating point arithmetic, typ.  2.3 µs; / instruction  for floating point arithmetic, typ.  2.3 µs; / instruction	Rated value (AC)	
permissible range, lower limit (AC) 264 V  Line frequency  • permissible range, upper limit (AC)  • permissible range, lower limit 47 Hz • permissible range, upper limit 63 Hz  Input current  Current consumption (rated value) 100 mA at 120 V AC; 50 mA at 240 V AC  Current consumption, max. 300 mA at 120 V AC; 150 mA at 240 V AC  Inrush current, max. 20 A; at 264 V  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 20.4 to 28.8V  Power loss  Power loss, typ. 14 W  Memory  Work memory  • integrated 100 kbyte  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. 1.7 µs; / instruction for word operations, typ. 1.7 µs; / instruction for word operations, typ. 1.7 µs; / instruction for for dod operations, typ. 2.9 µs; / instruction for for dod operations, typ. 2.9 µs; / instruction for for dod operations, typ.	• 120 V AC	Yes
permissible range, upper limit (AC) Line frequency  • permissible range, lower limit • permissible range, upper limit  Current  Current consumption (rated value)  Current consumption, max.  300 mA at 120 V AC; 50 mA at 240 V AC  Current consumption, max.  20 A; at 264 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 20.4 to 28.8V  Power loss  Power loss, typ.  14 W  Memory  Work memory • integrated  Load memory • integrated  Load memory • integrated  A Mbyte • Plug-in (SIMATIC Memory Card), max.  Backup • present • without battery  Yes; maintenance-free • without battery  CPU processing times  for bit operations, typ.  1.7 µs; / instruction  for word operations, typ.  for floating point arithmetic, typ.  2.3 µs; / instruction	• 230 V AC	Yes
Line frequency  • permissible range, lower limit  • permissible range, upper limit  63 Hz  Input current  Current consumption (rated value)  Current consumption, max.  100 mA at 120 V AC; 50 mA at 240 V AC  Current consumption, max.  20 A; at 264 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  20.4 to 28.8V  Power loss  Power loss, typ.  14 W  Memory  Work memory  • integrated  100 kbyte  Load memory  • integrated  Plug-in (SIMATIC Memory Card), max.  Backup  • present  • present  • present  • without battery  CPU processing times  for loating point arithmetic, typ.  1.7 µs; / instruction  for loating point arithmetic, typ.  1.9 µs; / instruction  for floating point arithmetic, typ.  2.3 µs; / instruction	permissible range, lower limit (AC)	85 V
permissible range, lower limit permissible range, upper limit permissible range, upper limit  for bermissible range, upper limit  Current consumption (rated value)  100 mA at 120 V AC; 50 mA at 240 V AC  Current consumption, max.  300 mA at 120 V AC; 150 mA at 240 V AC  Inrush current, max.  20 A; at 264 V  Cutput 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 encoder supply  14 W  Memory  Work memory  integrated  100 kbyte  Load memory  integrated  Plug-in (SIMATIC Memory Card), max.  Backup  present present yes; maintenance-free without battery  CPU processing times  for bit operations, typ.  1.7 µs; / instruction  for floating point arithmetic, typ.  2.3 µs; / instruction  for floating point arithmetic, typ.  2.3 µs; / instruction	permissible range, upper limit (AC)	264 V
permissible range, upper limit  for backplane bus (5 V DC), max.  power loss  Power loss, typ.  Power loss, typ.  Power loss  Power loss, typ.  integrated  Load memory  integrated  Plug-in (SIMATIC Memory Card), max.  by Present  present  present  present  pro Hundron And And And And And And And And And An	Line frequency	
Input current  Current consumption (rated value)  Current consumption, max.  300 mA at 120 V AC; 50 mA at 240 V AC  Inrush current, max.  20 A; at 264 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  20.4 to 28.8V  Power loss  Power loss, typ.  Work memory  • integrated  Load memory  • integrated  • Plug-in (SIMATIC Memory Card), max.  Backup  • present  • present  • without battery  CPU processing times  for bit operations, typ.  1.7 µs; / instruction  for word operations, typ.  for floating point arithmetic, typ.  100 mA at 120 V AC; 50 mA at 240 V AC  100 mA at 120 V AC; 50 mA at 240 V AC  100 mA at 120 V AC; 50 mA at 240 V AC  100 mA at 120 V AC; 50 mA at 240 V AC  100 mA at 120 V AC; 50 mA at 240 V AC  20.4 to 28.8V  Power loss, ty DC for SM and CM  4 MW  Memory  • 14 W  Memory  • 14 W  Memory  • integrated  • A Mbyte  • Plug-in (SIMATIC Memory Card), max.  with SIMATIC memory card  Backup  • present  • without battery  Yes  CPU processing times  for bit operations, typ.  1.7 µs; / instruction  for word operations, typ.  for floating point arithmetic, typ.  2.3 µs; / instruction	<ul> <li>permissible range, lower limit</li> </ul>	47 Hz
Current consumption (rated value)  Current consumption, max.  300 mA at 120 V AC; 50 mA at 240 V AC  Inrush current, max.  20 A; at 264 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 encoder supply  • 24 V 20.4 to 28.8V  Power loss  Power loss, typ.  14 W  Memory  Work memory  • integrated  100 kbyte  Load memory  • integrated  • Plug-in (SIMATIC Memory Card), max.  Backup  • present  • present  • without battery  CPU processing times  for bit operations, typ.  1.7 µs; / instruction  for floating point arithmetic, typ.  1.7 µs; / instruction  1.7 µs; / instruction  for floating point arithmetic, typ.  2.3 µs; / instruction	<ul> <li>permissible range, upper limit</li> </ul>	63 Hz
Current consumption, max.  Inrush current, max.  20 A; at 264 V  Output current  for backplane bus (5 V DC), max.  Incoder supply  24 V encoder supply  24 V 20.4 to 28.8V  Power loss  Power loss, typ.  14 W  Memory  Work memory  • integrated  Indicated  • Plug-in (SIMATIC Memory Card), max.  Backup  • present  • without battery  CPU processing times  for bit operations, typ.  1.7 µs; / instruction  for floating point arithmetic, typ.  20 A to	Input current	
Inrush current, max.  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 20.4 to 28.8V  Power loss  Power loss, typ.  14 W  Memory  Work memory  • integrated 100 kbyte  Load memory  • integrated 4 Mbyte  • Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card  Backup  • present Yes; maintenance-free  • without battery  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	Current consumption (rated value)	100 mA at 120 V AC; 50 mA at 240 V AC
for backplane bus (5 V DC), max.  I 600 mA; Max. 5 V DC for SM and CM  Encoder supply  24 V encoder supply  • 24 V  20.4 to 28.8V  Power loss  Power loss, typ.  14 W  Memory  Work memory  • integrated  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  for floating point arithmetic, typ.  1.7 µs; / instruction  1.7 µs; / instruction  for floating point arithmetic, typ.  2.3 µs; / instruction	Current consumption, max.	300 mA at 120 V AC; 150 mA at 240 V AC
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  20.4 to 28.8V  Power loss  Power loss, typ.  14 W  Memory  Work memory  • integrated  Load memory  • integrated  • Plug-in (SIMATIC Memory Card), max.  Backup  • present  • without battery  CPU processing times  for bit operations, typ.  1.7 µs; / instruction  for floating point arithmetic, typ.  1.3 400 mA; Max. 5 V DC for SM and CM  Encoder supply  20.4 to 28.8V  Power loss  14 W  Memory  4 Mbyte  • Mbyte  • Without battery  Yes; maintenance-free  Yes; maintenance-free  1 Yes; maintenance-free  1 Yes; maintenance-free  2 3 µs; / instruction  1 7 µs; / instruction  2 3 µs; / instruction	Inrush current, max.	20 A; at 264 V
Encoder supply  24 V encoder supply  24 V 20.4 to 28.8V  Power loss  Power loss, typ. 14 W  Memory  Work memory  integrated 100 kbyte  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 floating point arithmetic, typ. 2.3 µs; / instruction	Output current	
24 V encoder supply  • 24 V 20.4 to 28.8V  Power loss  Power loss, typ. 14 W  Memory  Work memory  • integrated 100 kbyte  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. 1.7 µs; / instruction  for floating point arithmetic, typ. 2.3 µs; / instruction	for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
• 24 V 20.4 to 28.8V  Power loss  Power loss, typ. 14 W  Memory  Work memory  • integrated 100 kbyte  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. 1.7 μs; / instruction  for floating point arithmetic, typ. 2.3 μs; / instruction	Encoder supply	
Power loss, typ.  Power loss, typ.  Memory  Work memory  • integrated  Load memory  • integrated  • Plug-in (SIMATIC Memory Card), max.  Backup  • present  • without battery  Present  • without battery  For bit operations, typ.  for word operations, typ.  for floating point arithmetic, typ.  14 W  MW  WH  WH  WH  WH  WH  WH  WH  WH  W	24 V encoder supply	
Power loss, typ.  Memory  Work memory  integrated  100 kbyte  Load memory  integrated  Plug-in (SIMATIC Memory Card), max.  Backup  present  integrated  Yes; maintenance-free  without battery  CPU processing times  for bit operations, typ.  1.7 µs; / instruction  for word operations, typ.  1.3 µs; / instruction  for floating point arithmetic, typ.	• 24 V	20.4 to 28.8V
Memory  Work memory  ● integrated 100 kbyte  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. 1.7 μs; / instruction  for floating point arithmetic, typ. 2.3 μs; / instruction	Power loss	
Work memory  ● integrated 100 kbyte  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. 1.7 μs; / instruction  for floating point arithmetic, typ. 2.3 μs; / instruction	Power loss, typ.	14 W
integrated 100 kbyte  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. 1.7 μs; / instruction  for floating point arithmetic, typ. 2.3 μs; / instruction	Memory	
Load memory	Work memory	
<ul> <li>integrated</li> <li>Plug-in (SIMATIC Memory Card), max.</li> <li>with SIMATIC memory card</li> </ul> Backup <ul> <li>present</li> <li>without battery</li> </ul> CPU processing times <ul> <li>for bit operations, typ.</li> <li>for word operations, typ.</li> <li>for floating point arithmetic, typ.</li> <li>2.3 µs; / instruction</li> </ul> for floating point arithmetic, typ. <ul> <li>2.3 µs; / instruction</li> </ul> 9 May 1 <ul> <li>May 2</li> <li>May 3</li> <li>May 4</li> <li>May 5</li> <li>May 6</li> <li>May 6</li> <li>May 7</li> <li>May 7</li> <li>May 7</li> <li>May 8</li> <li>May 9</li> <li>M</li></ul>	• integrated	100 kbyte
<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> <li>Backup</li> <li>present</li> <li>with SIMATIC memory card</li> <li>Present</li> <li>without battery</li> <li>Yes; maintenance-free</li> <li>without battery</li> <li>Yes</li> <li>CPU processing times</li> <li>for bit operations, typ.</li> <li>0.085 µs; / instruction</li> <li>for word operations, typ.</li> <li>1.7 µs; / instruction</li> <li>for floating point arithmetic, typ.</li> <li>2.3 µs; / instruction</li> </ul>	Load memory	
Backup	• integrated	4 Mbyte
<ul> <li>present</li> <li>without battery</li> <li>Yes</li> </ul> CPU processing times for bit operations, typ. <ul> <li>0.085 μs; / instruction</li> <li>for word operations, typ.</li> <li>1.7 μs; / instruction</li> <li>for floating point arithmetic, typ.</li> <li>2.3 μs; / instruction</li> </ul>	<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	with SIMATIC memory card
without battery  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	Backup	
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	• present	Yes; maintenance-free
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	<ul> <li>without battery</li> </ul>	Yes
for word operations, typ.  1.7 μs; / instruction  for floating point arithmetic, typ.  2.3 μs; / instruction	CPU processing times	
for floating point arithmetic, typ. 2.3 µs; / instruction	for bit operations, typ.	0.085 μs; / instruction
	for word operations, typ.	1.7 µs; / instruction
CPU-blocks	**	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	
<ul> <li>Number, max.</li> </ul>	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	
Process image	
<ul> <li>Inputs, adjustable</li> </ul>	1 kbyte
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)	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.	0.2 ms
— at "0" to "1", max.	12.8 ms
for interrupt inputs	
— parameterizable	Yes
for technological functions	
— parameterizable	Yes; Single phase: 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at
Cabla langéla	30 kHz
Cable length	FOO was FO we for to should be in the control of th
shielded, max.	500 m; 50 m for technological functions
unshielded, max.  Digital outputs	300 m; for technological functions: No
Digital outputs	40. Polove
Number of digital outputs	10; Relays
Short-circuit protection	Yes
Switching capacity of the outputs	2.4
with resistive load, max.	2 A
on lamp load, max.  Output delegatification load.	30 W with DC, 200 W with AC
Output delay with resistive load	40
• "0" to "1", max.	10 ms; max.
• "1" to "0", max.	10 ms; max.
Switching frequency	411
of the pulse outputs, with resistive load, max.	1 Hz
Relay outputs	
<ul> <li>Number of relay outputs</li> </ul>	10
Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100 000
Cable length	mechanically 10 million, at rated load voltage 100 000



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
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	,,
	100 Mbit/s
PROFINET IO Controller	
PROFINET IO Controller  • Transmission rate, max.	
PROFINET IO Controller  • Transmission rate, max.  Services	100 Mbit/s
PROFINET IO Controller  ● Transmission rate, max.  Services  — Number of connectable IO Devices, max.	100 Mbit/s
PROFINET IO Controller  ● Transmission rate, max.  Services  — Number of connectable IO Devices, max.  PROFINET IO Device	100 Mbit/s
PROFINET IO Controller  ● Transmission rate, max.  Services  — Number of connectable IO Devices, max.  PROFINET IO Device  Services	100 Mbit/s 16
PROFINET IO Controller  ● Transmission rate, max.  Services  — Number of connectable IO Devices, max.  PROFINET IO Device  Services  — Shared device	100 Mbit/s 16 Yes
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.	100 Mbit/s 16 Yes
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	100 Mbit/s  16  Yes 2
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  Supports protocol for PROFINET IO	100 Mbit/s  16  Yes 2
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  Supports protocol for PROFINET IO  PROFIBUS  AS-Interface	100 Mbit/s  16  Yes 2  Yes No
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  Supports protocol for PROFINET IO  PROFISafe  PROFIBUS  AS-Interface  Protocols (Ethernet)	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required
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  Supports protocol for PROFINET IO PROFISafe PROFIBUS  AS-Interface Protocols (Ethernet)  • TCP/IP	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required
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  Supports protocol for PROFINET IO PROFISafe PROFIBUS  AS-Interface Protocols (Ethernet)  • TCP/IP  Open IE communication	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required Yes
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  Supports protocol for PROFINET IO  PROFIsafe PROFIBUS  AS-Interface  Protocols (Ethernet)  • TCP/IP  Open IE communication  • TCP/IP	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required Yes
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  Supports protocol for PROFINET IO  PROFISafe PROFIBUS  AS-Interface  Protocols (Ethernet) • TCP/IP  Open IE communication • TCP/IP • ISO-on-TCP (RFC1006)	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required Yes  Yes  Yes
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  Supports protocol for PROFINET IO  PROFISafe PROFIBUS  AS-Interface Protocols (Ethernet)  • TCP/IP  Open IE communication  • TCP/IP  • ISO-on-TCP (RFC1006)  • UDP	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required Yes  Yes
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  Supports protocol for PROFINET IO  PROFISafe PROFIBUS  AS-Interface  Protocols (Ethernet) • TCP/IP  Open IE communication • TCP/IP • ISO-on-TCP (RFC1006)	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required Yes  Yes Yes Yes Yes Yes
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  Supports protocol for PROFINET IO  PROFIsafe PROFIBUS  AS-Interface Protocols (Ethernet)  • TCP/IP  Open IE communication  • TCP/IP  • ISO-on-TCP (RFC1006)  • UDP  Web server  • supported	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required Yes  Yes Yes Yes Yes Yes Yes
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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  Supports protocol for PROFINET IO  PROFISafe PROFIBUS  AS-Interface  Protocols (Ethernet)  • TCP/IP  Open IE communication  • TCP/IP  • ISO-on-TCP (RFC1006)  • UDP  Web server  • supported  • User-defined websites  Further protocols	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required Yes  Yes Yes Yes Yes Yes Yes Yes
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  Supports protocol for PROFINET IO  PROFISafe  PROFIBUS  AS-Interface  Protocols (Ethernet)  • TCP/IP  Open IE communication  • TCP/IP  • ISO-on-TCP (RFC1006)  • UDP  Web server  • supported  • User-defined websites  Further protocols  • MODBUS	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required Yes  Yes  Yes  Yes  Yes  Yes  Yes  Ye
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  Supports protocol for PROFINET IO  PROFISafe PROFIBUS  AS-Interface Protocols (Ethernet)  • TCP/IP  Open IE communication  • TCP/IP  • ISO-on-TCP (RFC1006)  • UDP  Web server  • supported  • User-defined websites  Further protocols  • MODBUS  communication functions / header	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required Yes  Yes Yes Yes Yes Yes Yes Yes
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  Supports protocol for PROFINET IO  PROFISafe PROFIBUS  AS-Interface Protocols (Ethernet)  TCP/IP  Open IE communication  TCP/IP  ISO-on-TCP (RFC1006)  UDP  Web server  supported User-defined websites  Further protocols  MODBUS  communication functions / header  S7 communication	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required Yes  Yes  Yes  Yes  Yes  Yes  Yes  Ye
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  Supports protocol for PROFINET IO PROFISafe PROFIBUS AS-Interface Protocols (Ethernet)  TCP/IP Open IE communication  TCP/IP ISO-on-TCP (RFC1006) UDP Web server  supported User-defined websites  Further protocols  MODBUS  communication functions / header  S7 communication  supported	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required Yes  Yes  Yes  Yes  Yes  Yes  Yes  Ye
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  Supports protocol for PROFINET IO  PROFIsafe PROFIBUS  AS-Interface Protocols (Ethernet)  • TCP/IP  Open IE communication  • TCP/IP  Open IE communication  • UDP  Web server  • supported • User-defined websites  Further protocols • MODBUS  communication functions / header  S7 communication  • supported • supported • supported • supported • supported • supported	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required Yes  Yes  Yes  Yes  Yes  Yes  Yes  Ye
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  Supports protocol for PROFINET IO PROFISafe PROFIBUS AS-Interface Protocols (Ethernet)  TCP/IP Open IE communication  TCP/IP ISO-on-TCP (RFC1006) UDP Web server  supported User-defined websites  Further protocols  MODBUS  communication functions / header  S7 communication  supported	100 Mbit/s  16  Yes 2  Yes No Yes; CM 1243-5 required Yes  Yes  Yes  Yes  Yes  Yes  Yes  Ye



- overell	4Cr dunaminally
overall  Test commissioning functions	16; dynamically
Test commissioning functions	
Status/control	V
Status/control variable     Variables	Yes
Variables  Foreign	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	Yes
Forcing     Diagnostic buffer	Tes
	Von
• present Traces	Yes
Number of configurable Traces	2; Up to 512 KB of data per trace are possible
Integrated Functions	2, Op to 312 ND of data per trace are possible
Frequency measurement	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction interface	Up to 4 with SB 1222
PID controller	Yes
Number of alarm inputs	4
Potential separation	-
Potential separation digital inputs  • Potential separation digital inputs	500V AC for 1 minute
	500V AC for 1 minute
between the channels, in groups of  Potential separation digital outputs	
· · · · · · · · · · · · · · · · · · ·	Dolovo
Potential separation digital outputs     A between the shappels.	Relays
<ul><li>between the channels</li><li>between the channels, in groups of</li></ul>	No 2
between the channels, in groups of  EMC	2
Interference immunity against discharge of static electricity	Yes
<ul> <li>Interference immunity against discharge of static electricity acc. to IEC 61000-4-2</li> </ul>	Tes
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-	Yes
4-4	
<ul> <li>Interference immunity on signal cables acc. to IEC 61000- 4-4</li> </ul>	Yes
Interference immunity against voltage surge	
Interference immunity against voltage surge     Interference immunity on supply lines acc. to IEC 61000-	Yes
4-5	165
Interference immunity against conducted variable disturbance indu	ced by high-frequency fields
Interference immunity against high-frequency radiation	Yes
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
<ul> <li>Limit class B, for use in residential areas</li> </ul>	Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011
Degree and class of protection	ior oldes b according to Liv 500 FT
	IP20
IP degree of protection  Ambient conditions	11 20
Free fall	0.2 m; five times, in product posters
Fall height, max.  Ambient temperature during operation.	0.3 m; five times, in product package
Ambient temperature during operation	40 °C: - Tmin (incl. condensation/fract): etart up @ 25 °C
• min.	-40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C  60 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital
max.	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	
<ul> <li>Installation altitude above sea level, max.</li> </ul>	2 000 m



Ambient sigteman and una begrenstein annoccure altitude	Tesis Tesay at 4.440 hDs 705 hDs / 4.000 ms 12.000 ms // Tesis // Tesay
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	
<ul> <li>With condensation, tested in accordance with IEC 60068- 2-38, max.</li> </ul>	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Vibrations	
<ul> <li>Vibration resistance during operation acc. to IEC 60068- 2-6</li> </ul>	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
<ul> <li>Operation, tested according to IEC 60068-2-6</li> </ul>	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	
<ul> <li>to biologically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
<ul> <li>to chemically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); $^{\star}$
<ul> <li>to mechanically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
<ul> <li>to biologically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
<ul> <li>to chemically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); $^{\star}$
<ul> <li>to mechanically active substances according to EN 60721-3-6</li> </ul>	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
<ul> <li>Against chemically active substances acc. to EN 60654-4</li> </ul>	Yes; Class 3 (excluding trichlorethylene)
<ul> <li>Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04</li> </ul>	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	
<ul> <li>Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04</li> </ul>	* 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
<ul> <li>Protection against fouling acc. to EN 60664-3</li> </ul>	Yes; Type 1 protection
<ul> <li>Military testing according to MIL-I-46058C, Amendment 7</li> </ul>	Yes; Discoloration of coating possible during service life
<ul> <li>Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC- CC-830A</li> </ul>	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	110 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	455 g
last modified:	9/21/2023 🗗

