## **SIEMENS**

## **Data sheet**



SIPLUS S7-1200 CPU 1214C DC/DC/DC based on 6ES7214-1AG40-0XB0 with conformal coating, -40...+60 °C, start up -25 °C, compact CPU, DC/DC/DC, onboard I/O: 14 DI 24 V DC; 10 DQ 24 V DC; 2 AI 0-10 V DC, power supply: DC 20.4-28.8 V DC, program/data memory 100 KB

Figure similar

Product type designation Engineering with  STEP 7 TIA Portal configurable/integrated from version Supply votage Rated value (DC)  224 V DC Permissible range, upper limit (DC) Permissible range, lower limit (DC) Permitsible range, lower limit (DC)	General information	
STEP 7 TIA Portal configurable/integrated from version  Supply voltage  Rated value (DC)  • 24 V DC  permissible range, lower limit (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)  permissible range, lower limit (DC)  permissible range, lo	Product type designation	CPU 1214C DC/DC/DC
Rated value (DC)	Engineering with	
Rated value (DC)	<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	see entry ID: 109746275
• 24 V DC permissible range, lower limit (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) • permissible range, upper limit (DC)  • permissible range, upper limit (DC)  • permissible range, upper limit (DC)  • permissible range, upper limit (DC)  • permissible range, lower l	Supply voltage	
permissible range, lower limit (DC) 20.4 V permissible range, upper limit (DC) 28.8 V  Reverse polarity protection Yes  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. 1500 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 Power loss Power loss, typ. 12 W  Memory  Work memory  Integrated 100 kbyte  Load memory  Integrated 4 Mbyte Pilug-in (SIMATIC Memory Card), max. with SIMATIC memory card  Backup  Present Yes; maintenance-free Without battery Yes  CPU processing times  for bit operations, typ. 17 ps; / instruction for word operations, typ. 17 ps; / instruction 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	Rated value (DC)	
pemissible range, upper limit (DC)  Reverse polarity protection  Load voltage L+  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  permissible range, upe	• 24 V DC	Yes
Reverse polarity protection  Load voltage L+  • Rated value (DC)  • permissible range, lower limit (DC)  • permissible range, upper limit (DC)  • pormation (rated value)  • pormation (rated value)  • pormation (rated value)  • power loss  • power loss, typ.  • integrated  • lintegrated  • lint	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. 1 500 mA; CPU only Current consumption, max. 1 1 500 mA; CPU with all expansion modules Inrush current, max. 2 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	permissible range, upper limit (DC)	28.8 V
Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  28.8 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)  28.8 V	Load voltage L+	
permissible range, upper limit (DC) put 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 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 encoder supply  Power loss Power loss, typ. 12 W  Memory Work memory integrated 100 kbyte Load memory integrated 4 Mbyte Plug-in (SIMATIC Memory Card), max.  Backup  present processing times for bit operations, typ. 1.7 µs; / instruction for word operations, typ. 1.7 µs; / instruction for floating point arithmetic, typ. 2.3 µs; / instruction	<ul> <li>Rated value (DC)</li> </ul>	24 V
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.  Invush current 1 600 mA; Max. 5 V DC for SM and CM  Encoder supply  24 V encoder supply  24 V encoder supply  24 V	<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
Current consumption (rated value)  Current consumption, max.  Inrush current, 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 encoder supply  • 24 V  L+ minus 4 V DC min.  Power loss  Power loss, typ.  12 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 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>permissible range, upper limit (DC)</li> </ul>	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.  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  Load memory  • integrated  4 Mbyte  • Plug-in (SIMATIC Memory Card), max.  Backup  • present  • without battery  Yes; maintenance-free  • without battery  for bio operations, typ.  0.085 µs; / instruction  for word operations, typ.  1.7 µs; / instruction  for floating point arithmetic, typ.  2.3 µs; / instruction  for floating point arithmetic, typ.  2.3 µs; / instruction	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	Current consumption (rated value)	500 mA; CPU only
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	Current consumption, max.	1 500 mA; CPU with all expansion modules
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  Load memory  • integrated  • Plug-in (SIMATIC Memory Card), max.  Backup  • present  • without battery  Yes  CPU processing times  for bit operations, typ.  1.7 µs; / instruction  for folating point arithmetic, typ.  1.600 mA; Max. 5 V DC for SM and CM  L+ minus 4 V DC min.  10 kbyte  L+ minus 4 V DC min.  4 M DC min.  100 kbyte  L+ minus 4 V DC min.  100 kbyte  100 kbyte	Inrush current, max.	12 A; at 28.8 V DC
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  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	Output current	
24 V L+ minus 4 V DC min.  Power loss  Power loss, typ. 12 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 L+ minus 4 V DC min.  Power loss, typ. 12 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.  Memory  Work memory  integrated  Load memory  integrated  Plug-in (SIMATIC Memory Card), max.  Backup  present  present  without battery  Yes; maintenance-free  without battery  Yes  CPU processing times  for bit operations, typ.  for word operations, typ.  for floating point arithmetic, typ.  12 W  Memory  100 kbyte  100 kbyte  4 Mbyte  with SIMATIC memory card  Yes; maintenance-free  Yes; maintenance-free  17 ps; / instruction  17 ps; / instruction  17 ps; / instruction	24 V encoder supply	
Power loss, typ.  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.  for word operations, typ.  for floating point arithmetic, typ.  12 W  Memory  4 Mbyte  with SIMATIC memory card  With SIMATIC memory card  Yes; maintenance-free  Yes  CPU processing times  for bit operations, typ.  1.7 µs; / instruction  for floating point arithmetic, typ.  2.3 µs; / instruction	• 24 V	L+ minus 4 V DC min.
Memory   Work memory          • integrated	Power loss	
Work memory	Power loss, typ.	12 W
integrated     Load memory         • integrated	Memory	
Load memory  integrated Plug-in (SIMATIC Memory Card), max.  Backup  present without battery  CPU processing times  for bit operations, typ. for word operations, typ. for floating point arithmetic, typ.  4 Mbyte 4 Mbyte 4 Mbyte 4 Mbyte 4 Mbyte 9 Without sammer card 9 With SIMATIC memory card 9 With SIMATIC memory card 9 With SIMATIC memory card 9 Ves; maintenance-free 9 Without battery 9 Yes  CPU processing times 1.7 µs; / instruction 9 1.7 µs; / instruction 9 2.3 µs; / instruction	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> <li>Yes; maintenance-free</li> <li>without battery</li> </ul> CPU processing times for bit operations, typ. <ul> <li>0.085 µs; / instruction</li> </ul> for word operations, typ. <ul> <li>1.7 µs; / instruction</li> </ul> for floating point arithmetic, typ. <ul> <li>2.3 µs; / instruction</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>present</li> <li>without battery</li> <li>Yes</li> <li>CPU processing times</li> <li>for bit operations, typ.</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         • 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	<ul><li>integrated</li></ul>	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.  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.  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. $0.085  \mu s; /  instruction$ for word operations, typ. $1.7  \mu s; /  instruction$ for floating point arithmetic, typ. $2.3  \mu s; /  instruction$	<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	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	
• Size, max.	8 kbyte; Size of bit memory address area
Local data	
per priority class, max.	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area	
Process image	
Inputs, adjustable	1 kbyte
Outputs, adjustable	1 kbyte
Hardware configuration	Thoyte
	2 comm. modulos, 1 cignal board, 9 cignal modulos
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
<ul> <li>of which inputs usable for technological functions</li> </ul>	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)	10 1 20 0. 2.0 1.0 1
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
— parameterizable	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
parameterizable	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)
· · · · · · · · · · · · · · · · · · ·	L. (-10 V)
Switching capacity of the outputs	0.5.0
with resistive load, max.	0.5 A
on lamp load, max.	5 W
Output voltage	
<ul><li>for signal "0", max.</li></ul>	0.1 V; with 10 kOhm load
• for signal "1", min.	20 V
• for signal "1", min.	
for signal "1", min.  Output current	20 V
for signal "1", min.  Output current     for signal "1" rated value	20 V 0.5 A

**To Tur, max.  **To Tur, max.  **Oxercting Secondary  **Of the public outputs  **Number of rollary cutputs  **Oxercting Secondary  **Oxe	a "4" to "0" may	Euo
Of the pulse outputs, with resistive load, max.     Relay outputs	• "1" to "0", max.	5 μs
Redit outputs	· · · · · · · · · · · · · · · · · · ·	400 M In
		100 kHz
Cable singsth		
• unshalled, max.   150 m		0
Number of analog inputs		
Anabog uputs  Vers  Vers		
Number of analog inputs  • Vottage  • Vottage  • Vottage  • Vottage  Ves  Input ranges (rated values), vottages  • 10 to +10 V  — Input residance (to to 10 V)  Cable length  • Input residance (to to 10 V)  Cable length  • Individud, max.  Number of analog outputs  Number of analog outputs  Number of analog outputs  Number of analog outputs  O Analog value generation for the Inputs  Integration and conversion time/resolution per channel  • Revolution with overrange (bit including sign), max.  • Integration intime, parameterizable  • Conversion time (per channel)  • Conversion time (per channel)  • Conversion time (per channel)  • Connectable encoders  • Zwire sensor  • Zwire sen	<u> </u>	150 m
Input ranges   Ves	Analog inputs	
• Voltage  • 10 to +10 V  — Input resistance (0 to 10 V)  • shelded, max.  • shelded, max.  Number of analog outputs  Number of analog outputs  Number of analog outputs  • Resolution with overrange (bit including sign), max. • integration and convesion time/resolution per channel  • Resolution with overrange (bit including sign), max. • integration and convesion time (see channel)  • Conversion time (see channel)  • Ves  • Conversion time (see channel)  • Ves  • Linturface  • Ves  • Linturface  • Ves  • Linturface  • Ves  • Autoconsing  • Ves  • RA 45 (Elbernet)  • PROFINET IO Controller  • PROFINET IO Controller  • PROFINET IO Controller  • PROFINET IO Controller  • Transmission rate, max.  • Services  — Number of connectable IO Devices, max.  • PROFINET IO Controllers with shared device, max.  • PROFINET IO Communication  • Ves  • Survices  — Shared device — Number of IO Controllers with shared device, max.  • PROFINET IO Communication • Ves  • PROFINET IO Communication • Connectable IO PROFINET IO • Ves  • PROFINET IO Communication • Connectable IO PROFINET IO • Ves  • PROFINET IO Communication • Connectable IO PROFINET IO • Ves  • PROFINET IO Communication • CONNECTARIES • Ves • Survices  — Shared device — Number of IO Controllers with shared device, max.  • PROFINET IO Communication • COPIP • Ves  • COPIP • Ves		2
input ranjes (raided values), voltages  • 0 to +10 V  — Input resistance (0 to 10 V)  2 2100k ohms  Cable length  • shielded, max.  Analog quitue generation for this inputs  Number of analog outputs  Analog value generation for this inputs  Integration and conversion time/resolution per channel  • Resolution with overange (bit including sign), max.  • Integration sime, parameterizable  • Conversion time (per channel)  • Linterface  Interface type  • PROFINET  Isolated  Ves  • Linterface  Ves  • Autonogotiation  • Ves  • Rud 45 (Ethernet)  • PROFINET  • PROFINET IO Controller  • PROFINET IO Controller  • PROFINET IO Device  • PROFINET IO Device  — Number of connectable IO Devices, max.  Services  — Number of Connectable io Devices, max.  • PROFINET IO Device  • PROFINET IO Device  • PROFINET IO Device  • PROFINET IO Device  — Number of Connectable io Devices, max.  • PROFINET IO Device  — Number of Connectable io Devices, max.  • PROFINET IO Device  • PROFINET IO Perice  • PROFINET IO  • PROFIN	Input ranges	
• 0 to +10 V	Voltage	Yes
- Input resistance (0 to 10 V) Cable length		
Cable length  • shielded, max.  Analog outputs  Number of analog outputs  Number of analog outputs  Resolution with overrange (bit including sign), max. • Integration and conversion time/resolution per channel  • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Conversion time (per channel)  • Conversion time (per chann	• 0 to +10 V	Yes
**shielded, max.** Analog outputs  Number of analog outputs  **Resolution with overrange (bit including sign), max.** • Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. • Integration time, parameterizable Yes • Conversion time (per channel) • Cesp significant of the conversion time/resolution per channel)  **Encodor**  **Connectable encoders** • 2-wire sensor Yes • 1.Interface  **Interface type  Interface type  Interface type  Interface type  Autocrossing  Yes  Autocrossing  Yes • R4 54 (Ethemet) • PROFINET IO Controller • PROFINET IO Controller • PROFINET IO Controller • PROFINET IO Controller • Transmission rate, max.  • Tran		≥100k ohms
Analog outputs  Number of analog outputs  Analog value generation for the inputs  Integration and conversion time/resolution per channel  Resolution with overrange (bit including sign), max.  Integration time, parameterizable  Conversion time (per channel)  Ezo jus  Fracoder  Connectable encoders  - 2-wire sensor  - 2-wire sensor  Interface type  I	Cable length	
Number of analog outputs Analog value generation for the inpute Integration and conversion time/resolution per channel  Resolution with overrange (bit including sign), max. Integration time, parameterizable Conversion time (per channel)  Resolution with overrange (bit including sign), max. Integration time, parameterizable Conversion time (per channel)  Resolution with overrange (bit including sign), max. Integration time, parameterizable Connectable encoders  - 2-wire sensor  Interface Interface Interface type PROFINET Isolated Yes Autonogolition Yes Autonogolition Yes Autonogolition Yes Autonogolition Yes Resolution of transmission rate Autonogolition Yes Resolution of transmission rate Autonogolition Yes PROFINET IO Controller Sorvices Number of connectable IO Devices, max. Isolated Resolution Re	shielded, max.	100 m; twisted and shielded
Integration and conversion time/resolution per channel  Resolution with overange (bit including sign), max.  Integration time, parameter/zable Conversion time (per channel)  Encoder  Connectable encoders  2 wite sensor Yes Interface  Interface type Interface types I	Analog outputs	
Integration and conversion time/resolution per channel  Resolution with overrange (bit including sign), max.   10 bit	Number of analog outputs	0
Resolution with overrange (bit including sign), max. Integration time, parameterizable Conversion time (per channel) Encoder Connectable encoders 2-wire sensor Yes Interface Interface type Interface type Interface type Interface type Autonogotiation Yes Autonogotiation Yes Autonogotiation Yes RAUGOVISH (Ethernet) PROFINET IO Controller PROFINET IO Controller PROFINET IO Controller Transmission rate, max. Services ROFINET IO Device PROFINET IO Device Services Service	Analog value generation for the inputs	
Integration time, parameterizable yes Conversion time (per channel) 625 µs  Encodor  Connectable encoders  2-wire sensor Yes  Interface  Interface type Interface type Isolated Yes Autonegotiation Yes Autonegotiation Yes Autonegotiation Yes Autonegotiation Yes  Froicools  PROFINET IO Controller PROFINET IO Controller PROFINET IO Controller Transmission rate, max.  Services  Number of connectable IO Devices, max.  PROFINET IO Device PROFINET IO Device PROFINET IO Controller Transmission rate, max.  Services  Number of Controllers with shared device, max.  PROFINET IO Device PROFINET IO Controller Transmission rate, max.  16  PROFINET IO Device PROFINET IO Controller Transmission rate, max.  16  PROFINET IO Device Services  Services  Services  Services  Yes  Number of IO Controllers with shared device, max.  PROFINET IO Controllers with shared device, max.  Protocols  Supports protocol for PROFINET IO Yes PROFIBUS  AS-Interface Yes PROFIBUS  Yes (CM 1243-5 required AS-Interface Yes Protocols (Ethemet) TCP/IP Yes ISO-on-TCP (RFC1006) Yes UDP Yes Supported Yes Supported	Integration and conversion time/resolution per channel	
Encoder Connectable encoders  ● 2-wire sensor Yes  1.Interface bye PROFINET Isolated Yes automatic detection of transmission rate Yes Autocrossing Yes  ● ROFINET IO Controller ● PROFINET IO Controller ● PROFINET IO Device Yes  ● ROFINET IO Controller ● Transmission rate, max. 100 Mbit/s Services  — Number of connectable IO Devices, max. 16  PROFINET IO Device Services  — Shared device Yes — Number of IO Controllers with shared device, max. 2  PROFINET Services  PROFINET IO PROFINET IO Yes PROFINES OF PROFINET IO ProFINET IO ProFINET IO ProFINET IO ProFINET IO ProFINET IO Device Yes  PROFINET IO Services Yes — Number of Controllers with shared device, max. 2  Protocols  Supports protocol for PROFINET IO Yes PROFISe Yes CM 1243-5 required  AS-interface Yes PROFICE CHIEFTON Yes  PROFINET (PIP)  PYES  Open IE communication  ■ TCP/IP  PYES  ● ISO-on-TCP (RFC1006) PYES  ● Supported  PYES  ● Supported  PYES	Resolution with overrange (bit including sign), max.	10 bit
Encoder  Connectable encoders  • 2-wire sensor  Interface type  Interface type  automatic detection of transmission rate  Autocrossing  • RU 45 (Ethernet)  • PROFINET IO Controller  • PROFINET IO Device  PROFINET IO Device  PROFINET IO Device  • Transmission rate, max.  Services  — Number of connectable IO Devices, max.  PROFINET IO Device  Services  — Shared device — Number of IO Controllers with shared device, max.  PROFINES OF PROFINET IO Profine To Controller Services  — Shared device — Number of PROFINET IO Profine Services  — Shared device — Number of IO Controller Services  — Shared device — Number of IO Controllers with shared device, max.  PROFISES  — Shared device — Number of IO Controllers with shared device, max.  PROFISES  Services  — Shared device — Number of IO Controllers with shared device, max.  PROFISES  — Shared device — Number of IO Controllers with shared device, max.  Protocols  Supports protocol for PROFINET IO  Yes  PROFIBUS  AS-Interface  Yes  Protocols (Ethernet)  • TCP/IP  Yes  Open IE communication  • TCP/IP  • Yes  • ISO-on-TCP (RFC1006) • Yes  • supported  • supported  • supported	• Integration time, parameterizable	Yes
Connectable encoders		625 µs
• 2-wire sensor	Encoder	
Interface type	Connectable encoders	
Interface type	• 2-wire sensor	Yes
Interface type	1. Interface	
Isolated		PROFINET
Autorossing Yes  Autorossing Yes  Interface types  • RJ 45 (Ethernet) Yes  • PROFINET IO Controller Yes  • PROFINET IO Controller Yes  • PROFINET IO Controller  • Transmission rate, max. 100 Mbit/s  Services  — Number of connectable IO Devices, max. 16  PROFINET IO Device  Services  — Shared device — Number of IO Controllers with shared device, max. 2  Protocols  Supports protocol for PROFINET IO  PROFIBUS  AS-Interface Protocols (Ethernet) • TCP/IP  • TCP/IP • ISO-on-TCP (RFC1006) • Ves  Web server  • supported  Ves  Ves  Ves  Ves  Ves  Ves  Ves  V		Yes
Autorossing Yes  Autorossing Yes  Interface types  • RJ 45 (Ethernet) Yes  • PROFINET IO Controller Yes  • PROFINET IO Controller Yes  • PROFINET IO Controller  • Transmission rate, max. 100 Mbit/s  Services  — Number of connectable IO Devices, max. 16  PROFINET IO Device  Services  — Shared device — Number of IO Controllers with shared device, max. 2  Protocols  Supports protocol for PROFINET IO  PROFIBUS  AS-Interface Protocols (Ethernet) • TCP/IP  • TCP/IP • ISO-on-TCP (RFC1006) • Ves  Web server  • supported  Ves  Ves  Ves  Ves  Ves  Ves  Ves  V	automatic detection of transmission rate	Yes
Autocrossing Yes  Interface types  • RJ 45 (Ethernet) Yes  Protocols  • PROFINET IO Controller Yes  • PROFINET IO Controller  • Transmission rate, max. 100 Mbit/s  Services  — Number of connectable IO Devices, max. 16  PROFINET IO Device  Services  — Shared device Yes  — Number of IO Controllers with shared device, max. 2  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  UDP  Web server  • supported  Yes  Web server  • supported		Yes
Interface types  • RJ 45 (Ethernet)  Protocols  • PROFINET IO Controller • PROFINET IO Device  PROFINET IO Controller • Transmission rate, max.  100 Mbit/s  Services  - Number of connectable IO Devices, max.  16  PROFINET IO Device  Services  - Shared device - Number of IO Controllers with shared device, max.  2  Protocols  Supports protocol for PROFINET IO PROFIBUS AS-Interface PROFIBUS AS-Interface Protocols (Ethernet) • TCP/IP Yes  Open IE communication • TCP/IP Yes  Web server • supported  Yes  Wes  Wes  Wes  Wes  Wes  Ves  Wes  Ves  Wes  Ves  V		Yes
● RJ 45 (Ethernet) Yes  Protocols  ● PROFINET IO Controller Yes  ● PROFINET IO Device Yes  PROFINET IO Controller  ● Transmission rate, max. 100 Mbit/s  Services  — Number of connectable IO Devices, max. 16  PROFINET IO Device  Services  — Shared device Yes — Number of IO Controllers with shared device, max. 2  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  Web server ● supported  Yes  Ves  Ves  Ves  Ves  Ves  Ves  Ves		
Protocols  PROFINET IO Controller PROFINET IO Device PROFINET IO Controller Transmission rate, max. 100 Mbit/s Services — Number of connectable IO Devices, max. 16  PROFINET IO Device Services — Sarvices — Shared device — Number of IO Controllers with shared device, max. 2  Protocols  Supports protocol for PROFINET IO Yes PROFIBUS AS-Interface Yes Protocols (Ethernet)  TCP/IP Yes Open IE communication  TCP/IP Yes UDP Web server  supported  Yes  Yes  Yes  Yes  Yes  Yes  Yes  Y		Yes
PROFINET IO Device Yes  PROFINET IO Controller  ● Transmission rate, max. 100 Mbit/s  Services  — Number of connectable IO Devices, max. 16  PROFINET IO Device  Services  — Shared device Yes — Number of IO Controllers with shared device, max. 2  Protocols  Supports protocol for PROFINET IO Yes PROFIBUS Yes; CM 1243-5 required  AS-Interface Yes  Protocols (Ethernet)  ● TCP/IP  Open IE communication  ● TCP/IP  ● ISO-on-TCP (RFC1006) ● Yes  Web server  ● supported  Yes		Yes
PROFINET IO Controller  • Transmission rate, max.  Services  — Number of connectable IO Devices, max.  16  PROFINET IO Device  Services  — Shared device — Number of IO Controllers with shared device, max.  2  Protocols  Supports protocol for PROFINET IO PROFISafe No PROFIBUS  AS-Interface Protocols (Ethernet)  • TCP/IP Open IE communication  • TCP/IP  • ISO-on-TCP (RFC1006) • Yes  UDP  Web server  • supported  100 Mbit/s  100 Mbit/s  16  PROFINET IO Pes  Yes  Yes  Yes  Yes  Protocols  Yes  Yes  Yes  Yes  Yes  Yes  Yes  Y		
<ul> <li>Transmission rate, max.</li> <li>Services</li> <li>Number of connectable IO Devices, max.</li> <li>PROFINET IO Device</li> <li>Services</li> <li>Shared device</li> <li>Number of IO Controllers with shared device, max.</li> <li>Protocols</li> <li>Supports protocol for PROFINET IO</li> <li>Yes</li> <li>PROFIBUS</li> <li>AS-Interface</li> <li>Protocols (Ethernet)</li> <li>TCP/IP</li> <li>TCP/IP</li> <li>Yes</li> <li>Open IE communication</li> <li>TCP/IP</li> <li>Yes</li> <li>UDP</li> <li>Yes</li> <li>Web server</li> <li>supported</li> <li>Yes</li> </ul>		
Services  - Number of connectable IO Devices, max. 16  PROFINET IO Device  Services  - Shared device		100 Mbit/s
Number of connectable IO Devices, max.  PROFINET IO Device  Services Shared device		
PROFINET IO Device  Services  - Shared device Yes - Number of IO Controllers with shared device, max. 2  Protocols  Supports protocol for PROFINET IO Yes PROFISATE No PROFIBUS Yes; CM 1243-5 required  AS-Interface Yes  Protocols (Ethernet)  • TCP/IP Yes  Open IE communication  • TCP/IP Yes  • ISO-on-TCP (RFC1006) Yes  Web server  • supported  Yes		16
Services  - Shared device Yes - Number of IO Controllers with shared device, max.  Protocols  Supports protocol for PROFINET IO Yes PROFIsafe No PROFIBUS Yes; CM 1243-5 required  AS-Interface Yes Protocols (Ethernet)  • TCP/IP Yes Open IE communication  • TCP/IP Yes • ISO-on-TCP (RFC1006) • UDP Web server • supported  Yes		
Shared device Number of IO Controllers with shared device, max.  Protocols  Supports protocol for PROFINET IO  PROFIsafe PROFIBUS PROFIBUS AS-Interface Protocols (Ethernet)  • TCP/IP • TCP/IP  Open IE communication  • TCP/IP  • ISO-on-TCP (RFC1006) • UDP  Web server • supported  Yes  Yes  Yes  Yes  Yes		
Number of IO Controllers with shared device, max.  Protocols  Supports protocol for PROFINET IO Yes PROFIsafe No PROFIBUS Yes; CM 1243-5 required  AS-Interface Yes  Protocols (Ethernet) • TCP/IP Yes  Open IE communication • TCP/IP		Yes
Protocols           Supports protocol for PROFINET IO         Yes           PROFIsafe         No           PROFIBUS         Yes; CM 1243-5 required           AS-Interface         Yes           Protocols (Ethernet)         Yes           • TCP/IP         Yes           Open IE communication         Yes           • ISO-on-TCP (RFC1006)         Yes           • UDP         Yes           Web server         • supported         Yes		
Supports protocol for PROFINET IO         Yes           PROFIsafe         No           PROFIBUS         Yes; CM 1243-5 required           AS-Interface         Yes           Protocols (Ethernet)         Yes           • TCP/IP         Yes           • Iso-on-TCP (RFC1006)         Yes           • UDP         Yes           Web server         Yes           • supported         Yes	,	_
PROFIsafe         No           PROFIBUS         Yes; CM 1243-5 required           AS-Interface         Yes           Protocols (Ethernet)         • TCP/IP           • TCP/IP         Yes           Open IE communication         • TCP/IP           • ISO-on-TCP (RFC1006)         Yes           • UDP         Yes           Web server         • supported         Yes		Vas
PROFIBUS         Yes; CM 1243-5 required           AS-Interface         Yes           Protocols (Ethernet)         Yes           • TCP/IP         Yes           Open IE communication         Yes           • ISO-on-TCP (RFC1006)         Yes           • UDP         Yes           Web server         supported         Yes		
AS-Interface Yes  Protocols (Ethernet)		
Protocols (Ethernet)           ● TCP/IP         Yes           Open IE communication         Yes           ● TCP/IP         Yes           ● ISO-on-TCP (RFC1006)         Yes           ● UDP         Yes           Web server         Yes		
		1 00
Open IE communication           • TCP/IP         Yes           • ISO-on-TCP (RFC1006)         Yes           • UDP         Yes           Web server         Yes		Vec
		1 00
● ISO-on-TCP (RFC1006)  ● UDP  Yes  Web server  ● supported  Yes		Voc
◆ UDP Yes  Web server  ◆ supported Yes		
Web server  ◆ supported Yes		
• supported Yes		res
		V
User-aerinea websites     Yes		
	User-defined websites	Tes

Further protocols	
MODBUS	Yes
communication functions / header	
S7 communication	
supported	Yes
as server	Yes
• as client	Yes
Number of connections	165
overall	16; dynamically
Test commissioning functions	10; dynamicany
Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	inputorouputo, memory bito, bbb, distributed 1/00, timero, counters
• Forcing	Yes
Diagnostic buffer	
• present	Yes
Traces	
Number of configurable Traces	2; Up to 512 KB of data per trace are possible
Integrated Functions	, , ,
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
<ul> <li>between the channels, in groups of</li> </ul>	1
Potential separation digital outputs	
Potential separation digital outputs	Yes
<ul> <li>between the channels</li> </ul>	No
<ul> <li>between the channels, in groups of</li> </ul>	1
EMC	
Interference immunity against discharge of static electricity	
Interference immunity against discharge of static	Yes
electricity acc. to IEC 61000-4-2	
<ul> <li>Test voltage at air discharge</li> </ul>	8 kV
Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	
<ul> <li>Interference immunity on supply lines acc. to IEC 61000- 4-4</li> </ul>	Yes
<ul> <li>Interference immunity on signal cables acc. to IEC 61000-</li> </ul>	Yes
4-4	165
Interference immunity against voltage surge	
• Interference immunity on supply lines acc. to IEC 61000-	Yes
4-5	
Interference immunity against conducted variable disturbance indu	
<ul> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-4-6</li> </ul>	Yes
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 the limits
□ Littlit Class D, TOT USE IT TESTUETITIAL ATEAS	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
<u> </u>	

Ambient temperature during operation		
min.	-40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C	
max.      At cold restart, min.	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  -25 °C	
Ambient temperature during storage/transportation	25 0	
• 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 (Tma - 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		
<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	
Operation, tested according to IEC 60068-2-6  Observations	Yes	
tested according to IEC 60068-2-27	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms	
Resistance	dudion 11 mo	
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	V 01 000 11 15 1 1 1 1 1 1 1 1 1 1 1 1 1	
— 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); *  Yes; Class 6S3 incl. sand, dust; *	
<ul> <li>to mechanically active substances according to EN 60721-3-6</li> </ul>	res, Class 033 iiidi. Saiiu, uusi,	
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	
onfiguration / header		
configuration / programming / header		
Programming language		
— LAD	Yes	
EDD	Yes	
— FBD	103	

<ul> <li>adjustable</li> </ul>	Yes	
Dimensions		
Width	110 mm	
Height  Depth	100 mm	
Depth	75 mm	
Weights		
Weight, approx.	415 g	

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