## **SIEMENS**

## **Data sheet**



SIMATIC S7-1200, CPU 1214C, 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

Figure similar

Product type designation CPU 1214C DC/DC/DC Firmware version V4.5 Engineering with  • Programming package STEP 7 V17 or higher  Supply voltage  Rated value (DC)  • 24 V DC  permissible range, lower limit (DC)  • 28.8 V  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, 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, lower limit (DC)  • permissible range, upper limit (DC)  • permissible range, lower limit (DC)  •	General information	
Engineering with  Programming package STEP 7 V17 or higher Supply votice Rated value (DC)  24 V DC  Permissible range, upper limit (DC) 28.8 V Reverse polarity protection Ves  Permissible range, upper limit (DC) 28.8 V Reverse polarity protection Ves  Load votiage L+  Pated value (DC)  permissible range, lower limit (DC) 28.8 V  Permissible range, upper limit (DC) 28.8 V  permissible range, upper limit (DC) 28.8 V  Input current  Current consumption (rated value) Current consumption, max. 1500 mA; CPU only Current consumption, max. 12 A; at 28.8 V  IP 0,5 A*-s  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 encoder supply  25 V encoder supply  10 V Memory  Work memory  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  Present Present Present Present Present Prese Pres	Product type designation	CPU 1214C DC/DC/DC
Programming package  Supply voltage  Rated value (DC)	Firmware version	V4.5
Rated value (DC)	Engineering with	
Rated value (DC)	<ul> <li>Programming package</li> </ul>	STEP 7 V17 or higher
• 24 ∨ DC  permissible range, lower limit (DC)	Supply voltage	
permissible range, lower limit (DC)	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, lower limit (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  permissible range, lower limit (DC)  permissible range, lower limit (DC)  28.8 V  Input current  Current consumption (rated value)  Current consumption (rated value)  Soo mA; CPU only  Current consumption, max.  1500 mA; CPU with all expansion modules  Inrush current, max.  12 A; at 28.8 V  Pt  0.5 A*s  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  Power loss, typ.  Memory  Work memory  integrated  pintegrated  4 Mbyte  Plug-in (SIMATIC Memory Card), max.  with SIMATIC memory card  Backup  present  yes  without battery  Yes  without battery  Yes	• 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 1500 mA; CPU with all expansion modules  Inrush current, max. 12 A; at 28.8 V  Pt  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 100 kbyte  Load memory • integrated 4 Mbyte • Plug-in (SIMATIC Memory Card), max.  Backup  • present • present • present • maintenance-free • Yes • without battery  Yes	permissible range, lower limit (DC)	20.4 V
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 2 A; at 28.8 V  Output current  for backplane bus (5 V DC), max.  1 600 mA; Max. 5 V DC for SM and CM  Encoder supply  24 V	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.	Reverse polarity protection	Yes
permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC)  so permissible range, upper limit (DC)  28.8 V  Input current  Current consumption (rated value) Current consumption, max. 1 500 mA; CPU with all expansion modules Inrush current, max. 12 A; at 28.8 V  Pt 0.5 A²-s  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 U L+ minus 4 V DC min.  Power loss  Power loss, typ.  Memory  Work memory  integrated 100 kbyte  Load memory  integrated 4 Mbyte Plug-in (SIMATIC Memory Card), max.  with SIMATIC memory card  present maintenance-free yes without battery  Yes  without battery  Yes	Load voltage L+	
permissible range, upper limit (DC)  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 2 A; at 28.8 V  Potential of backplane bus (5 V DC), max.  Inrush current  for backplane bus (5 V DC), max.  Inrush current  Inrush curren	<ul> <li>Rated value (DC)</li> </ul>	24 V
Input current Current consumption (rated value)  Current consumption, max.  Inrush current, max.  Inrush current, max.  It is 0.5 A*s  Output current for backplane bus (5 V DC), max.  Incoder supply  4 V v v v v v v v v v v v v v v v v v v	<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
Current consumption (rated value)  Current consumption, max.  1 500 mA; CPU with all expansion modules  Inrush current, max.  12 A; at 28.8 V  I*t  0.5 A*2s  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  • Plug-in (SIMATIC Memory Card), max.  Backup  • present  • present  • present  • maintenance-free  • without battery  Ves	<ul> <li>permissible range, upper limit (DC)</li> </ul>	28.8 V
Current consumption, max.  Inrush current, max.  It 2 A; at 28.8 V  It 0.5 A2 s  Output current  for backplane bus (5 V DC), max.  In 600 mA; Max. 5 V DC for SM and CM  Encoder supply  24 V encoder supply  24 V encoder supply  24 V Example 12 W  Power loss  Power loss, typ.  Integrated  Integr	Input current	
Inrush current, max.	Current consumption (rated value)	500 mA; CPU only
IPt 0.5 A2-S  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, max.	1 500 mA; CPU with all expansion modules
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. with SIMATIC memory card   Backup • present Yes   • maintenance-free Yes   • without battery Yes	Inrush current, max.	12 A; at 28.8 V
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  Load memory  • integrated  4 Mbyte  • Plug-in (SIMATIC Memory Card), max.  Backup  • present  • present  • maintenance-free  • without battery  Yes	l²t	0.5 A²·s
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  4 Mbyte  Plug-in (SIMATIC Memory Card), max.  Backup  • present  • maintenance-free  • without battery  Yes	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  100 kbyte  Load memory  • integrated  4 Mbyte  • Plug-in (SIMATIC Memory Card), max.  Backup  • present  • present  • maintenance-free  • without battery  Yes	for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
Example 10ss  Power loss, typ.  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  present  maintenance-free  without battery  Yes	Encoder supply	
Power loss Power loss, typ.  12 W  Memory  Work memory  integrated  100 kbyte  Load memory  integrated  Plug-in (SIMATIC Memory Card), max.  With SIMATIC memory card  Backup  present  maintenance-free without battery  12 W  12 W  12 W  12 W  13 W  14 W  15 W  16 W  17 W  18 W  18 W  19 W	24 V encoder supply	
Power loss, typ.  Memory  Work memory  integrated  Load memory  integrated  integrated  Plug-in (SIMATIC Memory Card), max.  Backup  present  maintenance-free  without battery  12 W  Memory  4 Mbyte  4 Mbyte  4 Mbyte  Yes	• 24 V	L+ minus 4 V DC min.
Work memory  integrated 100 kbyte  Load memory  integrated 4 Mbyte  integrated 4 Mbyte  Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card  Backup  present Yes maintenance-free Yes without battery Yes	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 Yes  • without battery Yes	Power loss, typ.	12 W
<ul> <li>integrated</li> <li>Load memory</li> <li>integrated</li> <li>Plug-in (SIMATIC Memory Card), max.</li> <li>Backup</li> <li>present</li> <li>maintenance-free</li> <li>with Office of the present of the prese</li></ul>	Memory	
Load memory	Work memory	
<ul> <li>integrated</li> <li>Plug-in (SIMATIC Memory Card), max.</li> <li>with SIMATIC memory card</li> <li>Backup</li> <li>present</li> <li>maintenance-free</li> <li>without battery</li> <li>4 Mbyte</li> <li>with SIMATIC memory card</li> <li>Yes</li> <li>Yes</li> </ul>	• integrated	100 kbyte
<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> <li>Backup</li> <li>present</li> <li>maintenance-free</li> <li>without battery</li> <li>with SIMATIC memory card</li> <li>Yes</li> <li>Yes</li> </ul>	Load memory	
Backup	• integrated	4 Mbyte
<ul> <li>present</li> <li>maintenance-free</li> <li>without battery</li> <li>Yes</li> <li>Yes</li> </ul>	Plug-in (SIMATIC Memory Card), max.	with SIMATIC memory card
<ul> <li>maintenance-free</li> <li>without battery</li> <li>Yes</li> </ul>	Backup	
without battery     Yes	• present	Yes
	• maintenance-free	Yes
CPU processing times	without battery	Yes
	CPU processing times	
for bit operations, typ. 0.08 μs; / instruction	for bit operations, typ.	0.08 μs; / instruction

for word appretians, type	1.7 up: / instruction
for word operations, typ.	1.7 μs; / instruction
for floating point arithmetic, typ.	2.3 µs; / instruction
CPU-blocks	
Number of blocks (total)	DBs, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used
OB	
Number, max.	Limited only by RAM for code
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	14 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	
Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
Time of day	5 comm. modulos, i olyma board, o olyma modules
Clock	
	Voo
Hardware clock (real-time)      Reality time	Yes
Backup time     Deviation per day, may	480 h; Typical ±60 s/month at 25 °C
Deviation per day, max.  Digital inputs	±00 \$/III0IItii 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
·	12.0 1115
for interrupt inputs	Voc
— parameterizable	Yes
for technological functions	Single phase: 3 @ 100 kHz 9 2 @ 20 kHz differential: 2 @ 90 kHz 9 2 @ 20
— 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
Output voltage	0.1 V: with 10 kOhm load
<ul><li>for signal "0", max.</li></ul>	0.1 V; with 10 kOhm load
• for signal "1", min.	20 V

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	
of the pulse outputs, with resistive load, max.	100 kHz
Relay outputs	100 101 12
Number of relay outputs	0
	0
Cable length	500
• shielded, max.	500 m
• unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
Input ranges	
<ul> <li>Voltage</li> </ul>	Yes
Input ranges (rated values), voltages	
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
	E TOOK OTHING
Cable length	100 m; twisted and shielded
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	
<ul> <li>Resolution with overrange (bit including sign), max.</li> </ul>	10 bit
Integration time, parameterizable	Yes
Conversion time (per channel)	625 µs
Encoder	ο <b>2</b> 0 μο
Connectable encoders	
• 2-wire sensor	Yes
2-wire sensor     I. Interface	Yes
	Yes PROFINET
1. Interface	
1. Interface Interface type	PROFINET
1. Interface Interface type Isolated automatic detection of transmission rate	PROFINET Yes Yes
1. Interface Interface type Isolated automatic detection of transmission rate Autonegotiation	PROFINET Yes Yes Yes
1. Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing	PROFINET Yes Yes
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types	PROFINET Yes Yes Yes Yes
1. Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet)	PROFINET Yes Yes Yes Yes Yes
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports	PROFINET Yes Yes Yes Yes Yes 1
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch	PROFINET Yes Yes Yes Yes Yes
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols	PROFINET Yes Yes Yes Yes You Yes You Yes 1
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch	PROFINET Yes Yes Yes Yes Yes 1
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols	PROFINET Yes Yes Yes Yes You Yes You Yes 1
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller	PROFINET Yes Yes Yes Yes 1 No
Interface Interface type Isolated automatic detection of transmission rate Autorossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols • PROFINET IO Controller • PROFINET IO Device	PROFINET Yes Yes Yes Yes You Yes 1 No Yes Yes
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication	PROFINET Yes Yes Yes Yes Yes Yes  Yes 1 No  Yes Yes Yes
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server	PROFINET Yes Yes Yes Yes Yes  Yes  Yes 1 No  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy	PROFINET Yes Yes Yes Yes Yes  Yes  Yes  Yes  Ye
Interface Interface type Isolated automatic detection of transmission rate Autorossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller	PROFINET Yes Yes Yes Yes Yes  Yes  Yes  Yes  Ye
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy  PROFINET IO Controller • Transmission rate, max.	PROFINET Yes Yes Yes Yes Yes  Yes  Yes  Yes  Ye
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy  PROFINET IO Controller • Transmission rate, max. Services	PROFINET Yes Yes Yes Yes Yes  Yes 1 No  Yes Yes Yes Yes Yes You will be a seried and the seried
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services  — PG/OP communication	PROFINET Yes Yes Yes Yes  Yes  1 No  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode	PROFINET Yes Yes Yes Yes Yes  Yes  Yes  1 No  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services  — PG/OP communication	PROFINET Yes Yes Yes Yes  Yes  1 No  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode	PROFINET Yes Yes Yes Yes Yes  Yes  Yes  1 No  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode — IRT	PROFINET Yes Yes Yes Yes Yes  Yes  Yes  1 No  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Interface Interface type Isolated automatic detection of transmission rate Autorossing Interface types  RJ 45 (Ethernet) Number of ports integrated switch  Protocols  PROFINET IO Controller PROFINET IO Device SIMATIC communication Open IE communication Web server Media redundancy  PROFINET IO Controller  Transmission rate, max.  Services  PG/OP communication Isochronous mode IRT PROFIenergy	PROFINET Yes Yes Yes Yes Yes  Yes  Yes  1 No  Yes Yes Yes Yes Yes Yes Yes Yes Yes; Optionally also encrypted Yes No  100 Mbit/s  Yes; encryption with TLS V1.3 pre-selected No No No
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types  • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols  • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy  PROFINET IO Controller • Transmission rate, max.  Services  — PG/OP communication — Isochronous mode — IRT — PROFIenergy — Prioritized startup	PROFINET Yes Yes Yes Yes Yes  Yes  Yes  Yes  1  No  Yes Yes Yes Yes Yes Yes; Optionally also encrypted Yes No  100 Mbit/s  Yes; encryption with TLS V1.3 pre-selected No No No Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy  PROFINET IO Controller • Transmission rate, max.  Services  — PG/OP communication — Isochronous mode — IRT — PROFlenergy — Prioritized startup — Number of IO devices with prioritized startup, max. — Number of connectable IO Devices, max.	PROFINET Yes Yes Yes Yes Yes  Yes  Yes  1 No  Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch  Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy  PROFINET IO Controller • Transmission rate, max.  Services  — PG/OP communication — Isochronous mode — IRT — PROFlenergy — Prioritized startup — Number of IO devices with prioritized startup, max.	PROFINET Yes Yes Yes Yes Yes Yes  Yes  Yes  1 No  Yes Yes Yes Yes Yes Yes Yes Yes; Optionally also encrypted Yes No  100 Mbit/s  Yes; encryption with TLS V1.3 pre-selected No No No Yes 16

<ul> <li>Activation/deactivation of IO Devices</li> </ul>	Yes
	8
<ul> <li>Number of IO Devices that can be simultaneously activated/deactivated, max.</li> </ul>	0
— Updating time	The minimum value of the update time also depends on the communication component set for PROFINET IO, on the number of IO devices and the quantity
PROFINET IO Device	of configured user data.
Services	
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
Isochronous mode	No
— ISOCIII OTOUS TITOUE  — IRT	No
— PROFlenergy	Yes
— Shared device	Yes
Number of IO Controllers with shared device, max.	2
Protocols	V
Supports protocol for PROFINET IO	Yes
PROFIsafe	No
PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
OPC UA	Yes; OPC UA Server
AS-Interface	Yes; CM 1243-2 required
Protocols (Ethernet)	
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	
Media redundancy	
— MRP	No
— MRPD	No
SIMATIC communication	
S7 routing	Yes
Open IE communication	
• TCP/IP	Yes
— Data length, max.	8 kbyte
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	8 kbyte
• UDP	Yes
— Data length, max.	1 472 byte
Web server	2,10
• supported	Yes
User-defined websites	Yes
OPC UA	
Runtime license required	Yes; "Basic" license required
OPC UA Server	Yes; data access (read, write, subscribe), method call, runtime license required
Application authentication	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
Number of sessions, max.	10
Number of subscriptions per session, max.	5
Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
- Number of server methods, max.	20
Number of server methods, max.      Number of monitored items, recommended max.	1 000
Number of monitored lieflis, recommended max.      Number of server interfaces, max.	2
<ul> <li>Number of nodes for user-defined server interfaces, max.</li> </ul>	2 000
Further protocols	
MODBUS	Yes
communication functions / header	
S7 communication	
supported	Yes
- supported	100

	V
• as server	Yes
• as client	Yes
User data per job, max.	See online help (S7 communication, user data size)
Number of connections  • overall	PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved / 10 max; Total Connections: 34 reserved / 64 max
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	
<ul> <li>Number of configurable Traces</li> </ul>	2
Memory size per trace, max.	512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
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 outputs
PID controller	Yes
Number of alarm inputs	4
Number of pulse outputs	4
Limit frequency (pulse)	100 kHz
Potential separation	
Potential separation digital inputs	
<ul> <li>Potential separation digital inputs</li> </ul>	No
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
EMC	
Interference immunity against discharge of static electricity	
<ul> <li>Interference immunity against discharge of static electricity acc. to IEC 61000-4-2</li> </ul>	Yes
Test voltage at air discharge	8 kV
Test voltage at all discharge  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	
<ul> <li>Interference immunity on supply lines acc. to IEC 61000- 4-5</li> </ul>	Yes
Interference immunity against conducted variable disturbance indu	ced by high-frequency fields
<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	
<ul> <li>Limit class A, for use in industrial areas</li> </ul>	Yes; Group 1
Limit class B, for use in residential areas	Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011
Degree and class of protection	

IP degree of protection	IP20
IP degree of protection	IF 2U
Standards, approvals, certificates	Var
CE mark	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
Ambient conditions	
Free fall	
● Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
● min.	-20 °C
• max.	60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical
<ul> <li>horizontal installation, min.</li> </ul>	-20 °C
<ul> <li>horizontal installation, max.</li> </ul>	60 °C
<ul> <li>vertical installation, min.</li> </ul>	-20 °C
vertical installation, max.	50 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
Operation, min.	795 hPa
Operation, max.	1 080 hPa
Storage/transport, min.	660 hPa
Storage/transport, max.	1 080 hPa
Altitude during operation relating to sea level	
Installation altitude, min.	-1 000 m
Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	,
Operation, max.	95 %; no condensation
Vibrations	
Vibration resistance during operation acc. to IEC 60068- 2-6	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
Pollutant concentrations	
SO2 at RH < 60% without condensation	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
configuration / header	
configuration / programming / header	
Programming language	
-LAD	Yes
— FBD	Yes
— SCL	Yes
Know-how protection	
<ul> <li>User program protection/password protection</li> </ul>	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
protection of confidential configuration data	Yes
Protection level: Write protection	Yes
Protection level: Read/write protection	Yes
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	
adjustable	Yes
Dimensions	
	110 mm
Width	110 mm

Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	415 g

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