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 24 V encoder supply 2 V encoder supply 4 V encoder supply 9 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 Present Prese • maintenanne-free • res • without battery Yes • without battery Yes	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)	 Programming package 	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 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 maintenance-free 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	 Rated value (DC) 	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	 permissible range, lower limit (DC) 	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	 permissible range, upper limit (DC) 	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
 integrated Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free with Office of the present of the prese	Memory	
Load memory	Work memory	
 integrated Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card Backup present maintenance-free without battery 4 Mbyte with SIMATIC memory card Yes Yes 	• integrated	100 kbyte
 Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free without battery with SIMATIC memory card Yes Yes 	Load memory	
Backup	• integrated	4 Mbyte
 present maintenance-free without battery Yes Yes 	Plug-in (SIMATIC Memory Card), max.	with SIMATIC memory card
 maintenance-free without battery Yes 	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, 1 signal board, 6 signal 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.			
— at 0 to 1, min. — at "0" to "1". max.	0.2 ms 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		
for signal "0", max.	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	
 Voltage 	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	
 Resolution with overrange (bit including sign), max. 	10 bit
Integration time, parameterizable	Yes
Conversion time (per channel)	625 µs
Encoder	ο 2 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

 Activation/deactivation of IO Devices 	Yes	
 Number of IO Devices that can be simultaneously 	8	
activated/deactivated, max.		
— 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	
— IRT	No	
— PROFlenergy	Yes	
 Shared device 	Yes	
 Number of IO Controllers with shared device, max. 	Yes 2	
Protocols		
	Yes	
Supports protocol for PROFINET IO		
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		
• supported	Yes	
User-defined websites	Yes	
OPC UA		
Runtime license required	Yes; "Basic" license required	
·		
OPC UA Server— Application authentication	Yes; data access (read, write, subscribe), method call, runtime license required 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	
	1 000	
Number of monitored items, recommended max. Number of server interfaces, max.		
 Number of server interfaces, max. 	2	
— Number of server interfaces, max.— Number of nodes for user-defined server interfaces,		
 Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. 	2	
Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Further protocols	2 2 000	
Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Further protocols MODBUS	2	
Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Further protocols	2 2 000	
 Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Further protocols MODBUS 	2 2 000	

• 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		
 Number of configurable Traces 	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		
Counter		
 Number of counters 	6	
Counting frequency, max.	100 kHz	
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		
Potential separation digital inputs	No .	
between the channels, in groups of	1	
Potential separation digital outputs	V	
Potential separation digital outputs	Yes	
between the channels between the channels in groups of	No 1	
between the channels, in groups of	1	
EMC		
Interference immunity against discharge of static electricity	V	
 Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 	Yes	
Test voltage at air discharge	8 kV	
 Test voltage at contact discharge 	6 kV	
Interference immunity to cable-borne interference		
• Interference immunity on supply lines acc. to IEC 61000-4-4	Yes	
• Interference immunity on signal cables acc. to IEC 61000-4-4	Yes	
Interference immunity against voltage surge		
 Interference immunity on supply lines acc. to IEC 61000- 4-5 	Yes	
Interference immunity against conducted variable disturbance indu	ced by high-frequency fields	
 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 	Yes	
Emission of radio interference acc. to EN 55 011		
Emission of radio interference acc. to E14 oc of 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	
Standards, approvals, certificates		
CE mark	Yes	
UL approval	Yes	
cULus	Yes	
FM approval	Yes	
RCM (formerly C-TICK)	Yes Yes	
KC approval Marine approval	Yes	
Ambient conditions	res	
Free fall		
• Fall height, max.	0.3 m; five times, in product package	
Ambient temperature during operation	0.5 III, live times, iii product package	
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	
• horizontal installation, min.	-20 °C	
 horizontal installation, max. 	60 °C	
 vertical installation, min. 	-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. Altitude during operation relating to sea level	1 080 hPa	
Installation altitude, min.	-1 000 m	
Installation altitude, max.		
Relative humidity	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual	
Operation, max.	95 %; no condensation	
Vibrations	00 %, 110 00114011041011	
Vibration resistance during operation acc. to IEC 60068- 2-6	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail	
 Operation, tested according to IEC 60068-2-6 	Yes	
Shock testing		
• tested according to IEC 60068-2-27	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms	
Pollutant concentrations • SO2 at RH < 60% without condensation	\$00: < 0.5 ppm; H2\$: < 0.1 ppm; PH < \$00/ pandagastics from	
SO2 at RH < 60% without condensation configuration / header	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free	
configuration / programming / header Programming language		
— LAD	Yes	
— FBD	Yes	
— SCL	Yes	
Know-how protection		
User program protection/password protection	Yes	
Copy protection	Yes	
	Yes	
Block protection		
Block protection Access protection		
Access protection		
Access protection • protection of confidential configuration data	Yes	
Access protection • protection of confidential configuration data • Protection level: Write protection	Yes Yes	
Access protection • protection of confidential configuration data	Yes	

 adjustable 	Yes	
Dimensions		
Width	110 mm	
Height Depth	100 mm	
Depth	75 mm	
Weights		
Weight, approx.	415 g	

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