Data sheet



SIMATIC S7-1200, CPU 1215C, compact CPU, DC/DC/DC, 2 PROFINET ports, onboard I/O: 14 DI 24 V DC; 10 DO 24 V DC; 0.5A; 2 AI 0-10 V DC, 2 AO 0-20 mA DC, Power supply: DC 20.4-28.8V DC, Program/data memory 125 KB

Figure similar

Product type designation CPU 1215C DC/DC/DC Firmware version V4.5 Engineering with ● Programming package STEP 7 V17 or higher Supply voltage Rated value (DC) • 24 V DC Yes permissible range, lower limit (DC) 28.8 V Reverse polarity protection Yes Load voltage L+ • Rated value (DC) • permissible range, upper limit (DC) 24 V permissible range, lower limit (DC) 24 V permissible range, lower limit (DC) 24 V permissible range, upper limit (DC) 24 V permissible range, lower limit (DC) 24 V permissible range, lower limit (DC) 24 V permissible range, lower limit (DC) 25 V permissible range, upper limit (DC) 26 V permissible range, upper limit (D	General information	
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Programming package Supply voltage Rated value (DC) • 24 V DC permissible range, lower limit (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, lower limit (DC) permissible range,	Firmware version	V4.5
Rated value (DC) 2 4 V DC permissible range, lower limit (DC) permissible range, upper limit (DC) Pass Load voltage L+ Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible rang	Engineering with	
Rated value (DC) • 24 V DC permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Rated value (DC) • permissible range, lower limit (DC) Reverse polarity protection Pes Load voltage L+ • Rated value (DC) • permissible range, lower limit (DC) 24 V • permissible range, lower limit (DC) 28.8 V Input current Current consumption (rated value) Current consumption, max. 1 500 mA; CPU only Current consumption, max. 12 A; at 28.8 V DC Input 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. Memory Work memory • integrated • expandable No Load memory • integrated • Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card Backup • present • present • present • present • present • maintenance-free • without battery Yes	 Programming package 	STEP 7 V17 or higher
e 24 V DC permissible range, lower limit (DC)	Supply voltage	
permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Load voltage L+ • Rated value (DC) • permissible range, lower limit (DC) permissible range, lower limit (DC) • permissible range, lower limit (DC) • permissible range, lower limit (DC) • permissible range, upper limit (DC) • 24 V • permissible range, upper limit (DC) • 24 V • DO mA; CPU only • 12 A; at 28.8 V DC • DC yell at lexpansion modules Inrush current, max. I 1500 mA; CPU only • 12 A; at 28.8 V DC Output current for backplane bus (5 V DC), max. I 1600 mA; Max. 5 V DC for SM and CM Encoder supply • 24 V • L+ minus 4 V DC min. Power loss Power loss, typ. I 2 W Memory Work memory • integrated • expandable • No Load memory • integrated • expandable No Load memory • integrated • Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card Backup • present • present • present • present • present • present • maintenance-free • vithout battery • Yes	Rated value (DC)	
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Reverse polarity protection Load voltage L+ • Rated value (DC) • permissible range, lower limit (DC) • permissible range, lower limit (DC) • permissible range, upper limit (DC) 28.8 V Input current Current consumption (rated value) Current consumption, max. Inush current, max. Inush current, max. Inush current for backplane bus (5 V DC), max. Inouth current Inouth	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) 28.8 V Input current Current consumption (rated value) Current consumption, max. 1 500 mA; CPU only Current consumption, max. 12 A; at 28.8 V DC I²t 0.5 A²²s Output current for backplane bus (5 V DC), max. 1 600 mA; Max. 5 V DC for SM and CM Encoder supply 24 V encoder supply • 24 V L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory • integrated • expandable Load memory • integrated • Plug-in (SIMATIC Memory Card), max. Backup • present • maintenance-free • without battery Yes	permissible range, upper limit (DC)	28.8 V
Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) 28.8 V Input current Current consumption (rated value) Current consumption, max. 1 500 mA; CPU only Current consumption, max. 1 500 mA; CPU with all expansion modules Inrush current, max. 12 A; at 28.8 V DC I²t 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 encoder supply 12 W Power loss Power loss, typ. 12 W Memory Work memory integrated persent plug-in (SIMATIC Memory Card), max. Backup present present present persent persent yes without battery Yes	Reverse polarity protection	Yes
• permissible range, lower limit (DC) • permissible range, upper limit (DC) • permissible range, upper limit (DC) Input current Current consumption (rated value) Current consumption, max. Inrush current, max. I²t I²t I²t I²t I²t I²t I²t I²	Load voltage L+	
permissible range, upper limit (DC) Input current Current consumption (rated value) Current consumption, max. I 500 mA; CPU only Current consumption, max. I 1 500 mA; CPU with all expansion modules Inrush current, max. I²t Output current for backplane bus (5 V DC), max. I 600 mA; Max. 5 V DC for SM and CM Encoder supply 24 V encoder supply • 24 V L+ minus 4 V DC min. Power loss Power loss Power loss, typ. I 2 W Memory Work memory • integrated • expandable Load memory • integrated • Plug-in (SIMATIC Memory Card), max. Backup • present • maintenance-free • without battery Yes	, ,	24 V
Input current Current consumption (rated value) Current consumption, max. Inrush current, max. If t		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 DC 1t 0.5 A²-s Cutput current for backplane bus (5 V DC), max. I 600 mA; Max. 5 V DC for SM and CM Encoder supply 24 V encoder supply • 24 V	• permissible range, upper limit (DC)	28.8 V
Current consumption, max. Inrush current, max. It A; at 28.8 V DC It 0.5 A2·s Output current for backplane bus (5 V DC), max. Inrush current Inrush cur	Input current	
Inrush current, max. I²t 0.5 A²-s Output current for backplane bus (5 V DC), max. I 600 mA; Max. 5 V DC for SM and CM Encoder supply 24 V encoder supply • 24 V L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory • integrated • expandable • expandable Load memory • integrated • Plug-in (SIMATIC Memory Card), max. Backup • present • present • maintenance-free • without battery 12 A; at 28.8 V DC 0.5 A²-s V DC for SM and CM Encoder SM and CM Encoder SM and CM Encoder SM and CM Encoder SM and CM I 600 mA; Max. 5 V DC fo	Current consumption (rated value)	500 mA; CPU only
Pit 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. Encoder supply 24 V encoder supply • 24 V • 24 V L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory • integrated • expandable Load memory • integrated • Plug-in (SIMATIC Memory Card), max. Backup • present • present • maintenance-free • without battery 1 600 mA; Max. 5 V DC for SM and CM 1 600 ma; Max. 5 V DC for SM and CM 1 600 ma; Max. 5 V DC for SM and CM 1 600 ma; Max. 5 V DC for SM and CM 1 600 ma; Max. 5 V DC for SM and CM 1 600 ma; Max. 5 V DC for SM and CM 1 600 ma; Max. 5 V DC for SM and CM 1 60	Inrush current, max.	12 A; at 28.8 V DC
for backplane bus (5 V DC), max. Encoder supply 24 V encoder supply • 24 V L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory • integrated • expandable Load memory • integrated • Plug-in (SIMATIC Memory Card), max. Backup • present • maintenance-free • without battery 1 600 mA; Max. 5 V DC for SM and CM L+ minus 4 V DC min. 12 W Memory 12 W Memory 4 W With SIMATIC memory Yes Yes Yes Yes	l²t	0.5 A ² ·s
Encoder supply 24 V encoder supply 24 V	Output current	
24 V encoder supply • 24 V L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory • integrated • expandable • expandable No Load memory • integrated • Plug-in (SIMATIC Memory Card), max. Backup • present • maintenance-free • without battery Ves	for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free without battery L+ minus 4 V DC min. Lat W Memory 12 W Memory 125 kbyte No 125 kbyte	Encoder supply	
Power loss Power loss, typ. 12 W Memory Work memory integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free without battery 125 kbyte No 4 Mbyte No 4 Mbyte with SIMATIC memory card Yes Yes	24 V encoder supply	
Power loss, typ. Memory Work memory integrated expandable Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free without battery 125 kbyte No 4 Mbyte with SIMATIC memory card Yes Yes	• 24 V	L+ minus 4 V DC min.
Work memory integrated expandable Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free without battery Vos	Power loss	
Work memory integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free without battery 125 kbyte No 4 Mbyte No 4 Mbyte with SIMATIC memory card Yes Yes Yes	Power loss, typ.	12 W
 integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free with Old Market Yes without battery 	Memory	
 expandable Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free with SIMATIC memory card Yes without battery 	Work memory	
Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free without battery 4 Mbyte with SIMATIC memory card Yes Yes Yes	integrated	125 kbyte
 integrated Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free with SIMATIC memory card Yes without battery 	expandable	No
 Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free with SIMATIC memory card Yes without battery Yes without battery 	Load memory	
Backup	3	
 present maintenance-free without battery Yes Yes 	Plug-in (SIMATIC Memory Card), max.	with SIMATIC memory card
maintenance-freewithout batteryYes	Backup	
• without battery Yes	• present	
	 maintenance-free 	Yes
CPU processing times	without battery	Yes
	CPU processing times	

for bit operations, typ.	0.08 μs; / 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	
Clock	
Hardware clock (real-time)	Yes
Backup time	480 h; Typical
Deviation per day, max.	±60 s/month at 25 °C
	200 0/110/11/1 (1/20 0
Digital inputs	44.11
Number of digital inputs	14; Integrated
of which inputs usable for technological functions Source/sink input	6; HSC (High Speed Counting) Yes
Source/sink input	Tes
Number of simultaneously controllable inputs all mounting positions	
— up to 40 °C, max.	14
Input voltage	17
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 V BO dt 2.0 HW
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
posterio de la constante de la	in groups of four
— at "0" to "1", min.	0.2 ms
— at "0" to "1", max.	12.8 ms
for interrupt inputs	
— parameterizable	Yes
for technological functions	
— parameterizable	Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3
O-bl- barath	@ 30 kHz
Cable length	FOO FO for took a classical for the
• 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	
6 : 1000	0.437 20 40 10 1 1
• for signal "0", max.	0.1 V; with 10 kOhm load
for signal "0", max.for signal "1", min.Output current	0.1 V; with 10 kOhm load 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	
 Number of relay outputs 	0
Cable length	
• shielded, max.	500 m
unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
Input ranges	2
<u> </u>	Voc
Voltage Input ranges (rated values) valtages	Yes
Input ranges (rated values), voltages	V
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	
shielded, max.	100 m; twisted and shielded
Analog outputs	
Number of analog outputs	2
Output ranges, current	
• 0 to 20 mA	Yes
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	40.1%
 Resolution with overrange (bit including sign), max. 	10 bit
 Integration time, parameterizable 	Yes
Conversion time (per channel)	625 µs
Analog value generation for the outputs	
Analog value generation for the outputs Integration and conversion time/resolution per channel	
	10 bit
Integration and conversion time/resolution per channel	10 bit
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Encoder	10 bit
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Encoder Connectable encoders	
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Encoder Connectable encoders • 2-wire sensor	10 bit Yes
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Encoder Connectable encoders • 2-wire sensor 1. Interface	Yes
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Encoder Connectable encoders • 2-wire sensor 1. Interface Interface type	
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Encoder Connectable encoders • 2-wire sensor 1. Interface	Yes
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Encoder Connectable encoders • 2-wire sensor 1. Interface Interface type	Yes PROFINET
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Encoder Connectable encoders • 2-wire sensor 1. Interface Interface type Isolated	Yes PROFINET Yes
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Encoder Connectable encoders • 2-wire sensor 1. Interface Interface type Isolated automatic detection of transmission rate	Yes PROFINET Yes Yes
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Encoder Connectable encoders • 2-wire sensor 1. Interface Interface type Isolated automatic detection of transmission rate Autonegotiation	Yes PROFINET Yes Yes Yes
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Encoder Connectable encoders • 2-wire sensor 1. Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing	Yes PROFINET Yes Yes Yes
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Encoder Connectable encoders • 2-wire sensor 1. Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types	Yes PROFINET Yes Yes Yes Yes Yes
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Encoder Connectable encoders • 2-wire sensor 1. Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet)	Yes PROFINET Yes Yes Yes Yes Yes Yes
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor Interface Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types RJ 45 (Ethernet) Number of ports integrated switch	Yes PROFINET Yes Yes Yes Yes Yes Yes 2
Integration and conversion time/resolution per channel • Resolution with overrange (bit including sign), max. Encoder Connectable encoders • 2-wire sensor 1. Interface Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols	Yes PROFINET Yes Yes Yes Yes Yes Yes Yes
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor Interface 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	Yes PROFINET Yes Yes Yes Yes Yes Yes Yes Yes Yes
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor Interface 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	Yes PROFINET Yes Yes Yes Yes Yes Yes Yes Yes 2 Yes
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor Interface 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	Yes PROFINET Yes Yes Yes Yes Yes Yes Yes 2 Yes Yes Yes Yes
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor 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	Yes PROFINET Yes Yes Yes Yes Yes Yes Yes 2 Yes
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor 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	Yes PROFINET Yes Yes Yes Yes Yes Yes Yes 2 Yes Yes
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor 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	Yes PROFINET Yes Yes Yes Yes Yes Yes Yes 2 Yes
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor 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	Yes PROFINET Yes Yes Yes Yes Yes Yes Yes Yes Ye
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor 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.	Yes PROFINET Yes Yes Yes Yes Yes Yes Yes 2 Yes Yes
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor Interface 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	Yes PROFINET Yes Yes Yes Yes Yes Yes Yes 2 Yes Yes
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor Interface 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	Yes PROFINET Yes Yes Yes Yes Yes Yes Yes 2 Yes
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor Interface 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	Yes PROFINET Yes Yes Yes Yes Yes Yes Yes 2 Yes Yes
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor Interface 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	Yes PROFINET Yes Yes Yes Yes Yes Yes Yes 2 Yes
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor Interface 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 Yes 100 Mbit/s Yes; encryption with TLS V1.3 pre-selected No
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor 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 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 Yes 100 Mbit/s Yes; encryption with TLS V1.3 pre-selected No No
Integration and conversion time/resolution per channel Resolution with overrange (bit including sign), max. Encoder Connectable encoders 2-wire sensor 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 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 Yes Yes

max.	
 Number of connectable IO Devices, max. 	16
 Number of connectable IO Devices for RT, 	16
max.	
— of which in line, max.	16
 Activation/deactivation of IO Devices 	Yes
 Number of IO Devices that can be 	8
simultaneously 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 of configured user data.
PROFINET IO Device	devided and the quantity of configured door 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,	2
max.	4
Protocols	
	Voc
Supports protocol for PROFINET IO PROFIsafe	Yes
	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)	N/
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	
Media redundancy	
— MRP	Yes; as MRP redundancy manager and/or MRP client
— MRPD	No
SIMATIC communication	
SIMATIC communication • S7 routing	No Yes
SIMATIC communication • S7 routing Open IE communication	Yes
SIMATIC communication • S7 routing Open IE communication • TCP/IP	Yes
SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max.	Yes Yes 8 kbyte
SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006)	Yes Yes 8 kbyte Yes
SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max.	Yes Yes 8 kbyte Yes 8 kbyte
SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • UDP	Yes Yes 8 kbyte Yes 8 kbyte Yes
SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Data length, max.	Yes Yes 8 kbyte Yes 8 kbyte
SIMATIC communication • S7 routing Open IE communication • TCP/IP — Data length, max. • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Data length, max. Web server	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes Yes Yes Yes
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes Yes Yes Yes Yes Y
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required OPC UA Server	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes Yes Yes Yes Yes Y
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes Yes Yes Yes Yes Y
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required OPC UA Server Application authentication	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes Yes Yes Yes Yes Y
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required OPC UA Server Application authentication User authentication	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required OPC UA Server Application authentication User authentication Number of sessions, max.	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 10
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required OPC UA Server Application authentication User authentication Number of sessions, max. Number of subscriptions per session, max.	Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes Yes Yes Yes Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 10 5
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required OPC UA Server Application authentication User authentication Number of sessions, max. Number of subscriptions per session, max. Sampling interval, min.	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 10 5 100 ms
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required OPC UA Server Application authentication User authentication Number of sessions, max. Number of subscriptions per session, max. Sampling interval, min. Publishing interval, min.	Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 10 5 100 ms 200 ms
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required OPC UA Server Application authentication User authentication Number of sessions, max. Number of subscriptions per session, max. Sampling interval, min. Publishing interval, min. Number of server methods, max.	Yes Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 10 5 100 ms 200 ms 20
SIMATIC communication S7 routing Open IE communication TCP/IP Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required OPC UA Server Application authentication User authentication Number of sessions, max. Number of subscriptions per session, max. Sampling interval, min. Publishing interval, min. Number of server methods, max. Number of monitored items, recommended	Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 10 5 100 ms 200 ms
SIMATIC communication S7 routing Open IE communication TCP/IP — Data length, max. ISO-on-TCP (RFC1006) — Data length, max. UDP — Data length, max. Web server Supported User-defined websites OPC UA Runtime license required OPC UA Server — Application authentication — User authentication — Number of sessions, max. — Number of subscriptions per session, max. — Sampling interval, min. — Publishing interval, min. — Number of server methods, max. — Number of monitored items, recommended max.	Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 10 5 100 ms 200 ms 20 1 000
SIMATIC communication S7 routing Open IE communication TCP/IP — Data length, max. ISO-on-TCP (RFC1006) — Data length, max. UDP — Data length, max. Ube server Supported User-defined websites OPC UA Runtime license required OPC UA Server — Application authentication — User authentication — Number of sessions, max. — Number of subscriptions per session, max. — Sampling interval, min. — Publishing interval, min. — Number of server methods, max. — Number of monitored items, recommended max. — Number of server interfaces, max.	Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 10 5 100 ms 200 ms 20 1 000
SIMATIC communication S7 routing Open IE communication TCP/IP — Data length, max. ISO-on-TCP (RFC1006) — Data length, max. UDP — Data length, max. Web server Supported User-defined websites OPC UA Runtime license required OPC UA Server — Application authentication — User authentication — Number of sessions, max. — Number of subscriptions per session, max. — Sampling interval, min. — Publishing interval, min. — Number of server methods, max. — Number of monitored items, recommended max.	Yes 8 kbyte Yes 8 kbyte Yes 1 472 byte Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 10 5 100 ms 200 ms 20 1 000

Further protocols	
Further protocols • MODBUS	Yes
ommunication functions / header	1 05
S7 communication	V
• supported	Yes
as server	Yes
• as client	Yes
User data per job, max. Never beautiful and a street and a stree	See online help (S7 communication, user data size)
Number of connections • overall	PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved /
• Overall	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	
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	
 Potential separation digital outputs 	Yes
 between the channels 	No
between the channels, in groups of	1
EMC	
Interference immunity against discharge of static electricity	
Interference immunity against discharge of static	Yes
electricity acc. to IEC 61000-4-2	211/
Test voltage at air discharge	8 kV
Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	V
• 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	V
• Interference immunity on supply lines acc. to IEC 61000-4-5	Yes
Interference immunity against conducted variable disturbance	
 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 	Yes

Emission of radio interference acc. to EN 55 011	
 Limit class A, for use in industrial areas 	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
Standards, approvals, certificates	
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	O O are five times a in mandred and leave
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	20.00
• 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.	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
 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	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	
User program protection/password protection	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	
Width	130 mm
Height Depth	100 mm
Depth	75 mm
Weights	
Weight, approx.	500 g

last modified: 7/19/2022 🖸