SIEMENS

Data sheet

6ES7212-1AE40-0XB0



SIMATIC S7-1200, CPU 1212C, compact CPU, DC/DC/DC, onboard I/O: 8 DI 24 V DC; 6 DO 24 V DC; 2 AI 0-10 V DC, power supply: DC 20.4-28.8 V DC, program/data memory 100 KB

Figure similar

General information	
Product type designation	CPU 1212C DC/DC/DC
Firmware version	V4.6
Engineering with	
 Programming package 	STEP 7 V18 or higher
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Load voltage L+	
 Rated value (DC) 	24 V
 permissible range, lower limit (DC) 	20.4 V
 permissible range, upper limit (DC) 	28.8 V
Input current	
Current consumption (rated value)	400 mA; CPU only
Current consumption, max.	1 200 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V DC
l²t	0.5 A ² ·s
Output current	
for backplane bus (5 V DC), max.	1 000 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.	9 W
Memory	
Work memory	
integrated	100 kbyte
Load memory	
• integrated	2 Mbyte
 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
Backup	
• present	Yes
• maintenance-free	Yes
without battery	Yes
CPU processing times	
for bit operations, typ.	0.08 µs; / instruction

for word appretians, type	1.7 vo. / 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.	4 kbyte; Size of bit memory address area	
Local data	They to, cize of all monthly dual obstation	
per priority class, max.	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB	
Address area	To hayto, Friend, Glace F (program dysto). To hay, priority stade 2 to 20. o ha	
Process image		
	1 khuto	
Inputs, adjustable Outputs, adjustable	1 kbyte	
Outputs, adjustable	1 kbyte	
Hardware configuration		
Number of modules per system, max.	3 comm. modules, 1 signal board, 2 signal modules	
Time of day		
Clock		
Hardware clock (real-time)	Yes	
Backup time	480 h; Typical	
 Deviation per day, max. 	±60 s/month at 25 °C	
Digital inputs		
Number of digital inputs	8; 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.	8	
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	
para	groups of four	
— at "0" to "1", min.	0.2 ms	
— at "0" to "1", max.	12.8 ms	
for interrupt inputs		
— parameterizable	Yes	
for technological functions		
— parameterizable	Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30	
	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	6	
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	
	- W	
Output voltage • for signal "0", max.	0.1 V: with 10 kOhm load	
	0.1 V; with 10 kOhm load	
• for signal "1", min.	20 V	

for signal "1" rated value	
Total Signal Traced 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	100 111 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
Cable length	
• shielded, max.	100 m; twisted and shielded
,	100 m, twisted and silicided
Analog outputs	0
Number of analog outputs	0
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
 Resolution with overrange (bit including sign), max. 	10 bit
 Integration time, parameterizable 	Yes
 Conversion time (per channel) 	625 µs
Encoder	
Connectable encoders	
2-wire sensor	Yes
1. Interface	
	PROFINET
Interface type	PROFINEI
	V
Isolated	Yes
automatic detection of transmission rate	Yes
automatic detection of transmission rate Autonegotiation	
automatic detection of transmission rate Autonegotiation Autocrossing	Yes
automatic detection of transmission rate Autonegotiation	Yes Yes
automatic detection of transmission rate Autonegotiation Autocrossing	Yes Yes
automatic detection of transmission rate Autonegotiation Autocrossing Interface types	Yes Yes Yes
automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet)	Yes Yes Yes
automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports	Yes Yes Yes Yes 1
automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols	Yes Yes Yes Yes No
automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller	Yes Yes Yes Yes Yes Yes Yes
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 Yes Yes Yes Yes Yes Yes Yes Ye
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 Yes Yes Yes Yes Yes Yes Yes Ye
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 Yes Yes Yes Yes Yes 1 No Yes Yes Yes Yes Yes Yes Yes Yes; Optionally also encrypted
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 Yes Yes Yes Yes Yes 1 No Yes Yes Yes Yes Yes Yes Yes Yes Yes; Optionally also encrypted Yes
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 Yes Yes Yes Yes Yes 1 No Yes Yes Yes Yes Yes Yes Yes Yes; Optionally also encrypted
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 Yes Yes Yes Yes Yes Yes Yes Ye
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 Yes Yes Yes Yes Yes 1 No Yes Yes Yes Yes Yes Yes Yes Yes Yes; Optionally also encrypted Yes
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 Yes Yes Yes Yes Yes Yes Yes Ye
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 Yes Yes Yes Yes Yes Yes Yes Ye
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 Yes Yes Yes Yes 1 No Yes Yes Yes Yes Yes Yes No 100 Mbit/s
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 Yes Yes Yes Yes 1 No Yes Yes Yes Yes Yes Yes Yes Your of the property of
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	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
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	Yes Yes Yes Yes Yes 1 No 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
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	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
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 Number of IO devices with prioritized startup, max.	Yes Yes Yes Yes Yes Yes Yes Yes Y
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.	Yes Yes Yes Yes Yes 1 No Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
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 Number of IO devices with prioritized startup, max.	Yes Yes Yes Yes Yes Yes Yes Yes Y

Number of 10 Devices that can be airrultaneously activated dearwheet, max. Updating time Updating time	 Activation/deactivation of IO Devices 	Yes	
Updating time	 Number of IO Devices that can be simultaneously 	8	
component set for PROFINET IO, on the number of IO devices and the quantity of configured user data. PROFIDE Communication - PGIOP communication - Instrument and No - IRT No - PROFIdenerty Ves Shared device Ves Shared device Ves Number of IO Controlers with shared device, max. Protocols Supports protocol for PROFINET IO Yes. PROFIDERS Yes. CM 1243-5 (master) or CM 1242-6 (slave) required OPC UA Yes. CPL UA Server - No STOPP - DATE of Controlers with shared device, max. Protocols (Ethernet) - TCPAP - DATE of Controlers with shared device, max. Protocols (Ethernet) - TCPAP - DATE of Controlers with shared device, max STOPP Ves NO STOPP Ves NO STOPP Ves Controlers Ves STOPP Ves Controlers Ves STOPP No STOPP N			
PROFINE O Device	— Updating time	component set for PROFINET IO, on the number of IO devices and the quantity	
Services	PROFINET IO Device	or sormigariou and realist	
Isochronous mode IRT IRT IRT PROFilenerity Shared device Number of IO Controllers with shared device, max. Protocols Supports protocol for PROFINET IO PROFItsafe IRT -		Yes: encryption with TLS V1.3 pre-selected	
- IRT - PROFlenergy Yes - Protocols - Number of IC Controllers with shared device, max. 2 Protocols - Number of IC Controllers with shared device, max. 2 Protocols - Supports protocol for PROFINET IO Yes - No PROFISHS			
PROFlenergy Shared device Shared Sha			
- Number of IO Controllers with shared device, max. Protocols Supports protocol for PROFINET IO PROFIBUS OPC UA AS-Interface OPC UA AS-Interface **CFUPP **CFUCION **CFUPP **CFUCION **CFUPP **CFUCION **CFUPP **CFU			
Supports protocol for PROFINET IO Yes PROFIBUS PROFIBUS OPC UA AS-interface Yes; CM 1243-2 required Protocols (Etnemet) **TCPIP* DHCP DHCP DHCP ON SIMMP DCP LLIDP Redundancy mode Media redundancy —MRP MRP Data length, max Several passive connections per port, supported SiSon-TCP (REC1006) **SO-TCP (REC1006) Data length, max UDP Data length, max Several passive connections per port, supported UDP Ves **SO-TCP (REC1006) Data length, max UDP Data			
Supports protocol for PROFINET IO PROFilade No PROFilade No PROFilade Protocols (Ethemet) **TOPIP** **CPPU NA **Pes, OPC UA Server **AS-Interface Protocols (Ethemet) **TOPIP** **DHCP** **DHCC** **DHCC** **DHCC** **DHCC** **DHC		2	
PROFisale PROFIBUS Yes, CM 1243-5 (master) or CM 1242-5 (slave) required PROFIBUS Yes, CM 1243-2 required Protocols (themet) • TCP/IP • DHCP • No • ShMP • DCP • ShMP • DCP • LLDP Redundancy mode Media redundancy — MRP — MRP — MRP — MRP — MRP — No SPANIALIC communication • \$7 routing Yes Pasal length, max. — several passive connections per port, supported • ISO on-TCP (RFC1006) — Data length, max. — several passive connections per port, supported • ISO on-TCP (RFC1006) — Data length, max. — several passive connections per port, supported • UDP — Data length, max. — 1 472 byte Web server • Supported • OPC UA • Runtime license required • OPC UA • Ves; 'Basic' license required • Available security policies: None, Basic 128Rsa15, Basic 256Rsa15, Basic 256Rsa256 • Basic 256Rsa256 • MODBUS • MODBUS • MODBUS • MODBUS • MODBUS		V	
PROFIBUS Yes; CM 1243-5 (master) or CM 1242-5 (slave) required			
OPC UA AS-Interface AS-Interface Yes, CM 1243-2 required Protocols (Ethemet) • TCP/IP • DHCP • DHCP • No • SMMP • DCP • LLDP Redundancy mode Media redundancy — MRP — Data length, max. — several passive connections per port, supported • ISO-On-TCP (RFC1006) — Data length, max. • UDP — Data length, max. • UDP — Data length, max. • UUP — Data length, max. • UUP — Cotal length, max. • UUP — Cotal length, max. • UUP — Data length, max. • UUP — Data length, max. • UUP — Data length, max. • UUP — Cotal length, max. • Uup ves • Supported • User-defined websites • Yes OPC UA • Runtime Icense required • OPC UA Server — Application authentication — Number of sessions, max. — Number of subscriptions per session, max. — Number of server methods, max. — Number of server interfaces, max. — Number of nodes for user-defined server interfaces, max. — Number of modes for user-defined server interfaces, max. — Number of modes for user-defined server interfaces, max. — Number of modes for user-defined server interfaces, max. — Number of modes for user-defined server interfaces, max. — Number of modes for user-defined server interfaces, max. — Number of modes for user-defined server interfaces, max. — Number of modes for user-defined server interfaces, max. — Number of modes for user-defined server interfaces, max. — Number of modes for user-defined server interfaces, max. — Number of modes for user-defined server interfaces, max. — Number of modes for user-defined server interfaces, max. — Number of modes for user-			
AS-interface Protocols (Ethemet) TCP/IP DHCP DHCP SIMMP DCP LLDP Redundancy mode Media redundancy MRPD No SIMATIC communication ST routing TCP/IP Data length, max. Several passive connections per port, supported ISO-on-TCP (RFC1006) Data length, max. Several passive connections per port, supported Substitution of the several passive connections per port, supported Substitution of the several passive connections per port, supported Substitution of the several passive connections per port, supported Substitution of the several passive connections per port, supported Substitution of the several passive connections per port, supported Substitution of the several passive connections per port, supported Substitution of the several passive connections per port, supported Substitution of the several passive connections per port, supported Substitution of the several passive connections per port, supported Substitution of the substitution of the several passive connections per port, supported Substitution of the several passive connections per port, supported Substitution of the substitution of the several passive connections per port, supported Substitution of the substitution of the several passive connections per port, supported Yes Substitution of the substitut			
Protocols (Ethemet) • TCPIP • DHCP • SNMP • DCP • SNMP • DCP • SNMP • DCP • Yes • LLDP Redundancy mode Media restundancy — MRP — MRP MRP No SIMATIC communication • S7 routing Pen lic communication • TCPIP — Data length, max. — several passive connections per port, supported • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Data length, max. • UDP — Data length, max. • UPP • UB and the standard or			
■ TCP/IP ■ DHCP ■ SNMP ■ SNMP ■ DCP ■ SNMP ■ DCP ■ LLDP Tes ■ LLDP Tes		Yes; CM 1243-2 required	
DHCP SNMP DCP DCP Ptes LLDP Yes Redundancy mode Media redundancy - MRP No No SMATIC communication S7 routing Yes Open IE communication TCP/IP Data length, max. Swipported Supported Data length, max. UDP Data length, max. Yes OPEN Data length, max. Swipported Supported			
SNMP DCP LLDP Yes LLDP Redundancy mode Media redundancy — MRP — MRP — No No SIMATIC communication • ST routing Open IE communication • TCPIIP — Data length, max. — several passive connections per port, supported • ISO-on-TCP (RFC1006) — Data length, max. — several passive connections per port, supported • ISO-on-TCP (RFC1006) — Data length, max. — 1 472 byte Web server • supported • User-defined websites OPC UA • Runtime license required • OPC UA Server — Application authentication — Number of subscriptions per session, max. — Number of subscriptions per session, max. — Number of server methods, max. — Number of server interfaces, max. — Number of notioned times, recommended max. — Number of server interfaces, max. — Number of server interfaces, max. — Number of server interfaces, max. — Number of notioned times, recommended max. — Number of server interfaces, max. — Number of server interfaces, max. — Number of server interfaces, max. — Number of notioned times, recommended max. — Number of server interfaces, max. — Number of notioned times, recommended max. — Number of server interfaces, max. — Number of notioned times, recommended max. — Number of server interfaces, max. — Number of server interfaces, max. — Number of server interfaces, max. — Out the times, the time times, the time times, the time time times, th			
● DCP ● LLDP Personal Pyes **LLDP Personal Pyes Media redundancy	• DHCP	No	
Redundancy mode Media redundancy	• SNMP	Yes	
Redundancy mode Media redundancy - MRP - MRP - MRPD No SIMATIC communication • 57 routing Open IE communication • TCP/IP - Data length, max several passive connections per port, supported • ISO-on-TCP (RFC1006) - Data length, max Several passive connections per port, supported • ISO-on-TCP (RFC1006) - Data length, max. • UDP - Data length, max. • UDP - Data length, max. • UDP - Data length, max. • USP - Data length max. • USP - Data length max. • USP - Data length max. Ves • User-defined websites OPC UA • Runtime license required • OPC UA Server - Application authentication - Number of sessions, max. - Number of subscriptions per session, max. - Number of sessions, max Number of sessions, max Number of sessions max Number of sessions max Number of server methods, max Number of server methods, max Number of server methods, max Number of sore remetheds, max Number of server methods, max Number of server interfaces, max Number of nodes for user-defined server interfaces, max Number of server interfaces, max Num	• DCP	Yes	
Media redundancy	• LLDP	Yes	
	Redundancy mode		
MRPD SIMATIC communication ◆ S7 routing Open IE communication • TCP/IP — Data length, max. — several passive connections per port, supported • ISO-on-TCP (RFC1006) — Data length, max. • UDP — Yes • User-defined websites OPC UA • Runtime license required • OPC UA Server — Application authentication — Number of sessions, max. — Number of sessions, max. — Number of sever methods, max. — Number of server methods, max. — Number of nodes for user-defined server interfaces, max. — Number of nontored lenns, recommended max. — Number of nontored lenns, recommended max. — Number of nontored lenns, recommended max. — Number of server methods, max. — Number of nontored lenns, recommended max. — Number of server methods, max. — Number of nontored lenns, recommended max. — Number of nontored lenns, recommended max. — Number of server interfaces, max. Puther protocols • MODBUS • MODBUS Yes Communication functions / header	Media redundancy		
SIMATIC communication Solvanting Open IE communication TCP/IP Data length, max. Several passive connections per port, supported SISO-on-TCP (RFC1006) Data length, max. Subyte Subported Supported Support	— MRP	No	
• \$7 routing Yes Open IE communication • TCP/IP Yes — Data length, max. 8 kbyte • ISO-on-TCP (RFC1006) Yes • Data length, max. 8 kbyte • ISO-on-TCP (RFC1006) Yes — Data length, max. 1472 byte Web server • 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 • OPC ua Server Application authentication 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 interfaces, max. 21 — Number of server interfaces, max. 22 — Number of nonitored items, recommended max. 20 — Number of server interfaces, max. 22 — Number of nodes for user-defined server interfaces, max. 22 — Number of nodes for user-defined server interfaces, max. 22 — Number of nodes for user-defined server interfaces, max. 22 — Number of nodes for user-defined server interfaces, max. 22 — Number of nodes for user-defined server interfaces, max. 25 • MODBUS Yes communication functions / header	— MRPD	No	
Open IE communication TCP/IP Data length, max. Several passive connections per port, supported ISO-on-TCP (RFC1006) Data length, max. Several passive connections per port, supported ISO-on-TCP (RFC1006) Data length, max. Several passive connections per port, supported Several passive passive pressure pressured Several passive pressure pressured Several passive pressured	SIMATIC communication		
TCP/IP Data length, max. Sk byte Several passive connections per port, supported FISO-on-TCP (RFC1006) Data length, max. Sk byte Supported Supported Supported Supported Super-defined websites Pes OPC UA Runtime license required OPC UA Server Application authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 User authentication Number of subscriptions per session, max. Number of subscriptions per session, max. Sampling interval, min. Publishing interval, min. Drumber of server methods, max. Number of server methods, max. Number of server methods, max. Number of server interfaces, max. Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Number of nodes for user-defined server interfaces, max. Suppose Supp	S7 routing	Yes	
- Data length, max several passive connections per port, supported • ISO-on-TCP (RFC1006) - Data length, max. • UDP - Data length, max. • UDP - Data length, max. • UDP - Data length, max. • User-defined websites OPC UA • Runtime license required • OPC UA Server - Application authentication - Application authentication - Number of sessions, max Number of subscriptions per session, max Sampling interval, min Publishing interval, min Number of server methods, max Number of server interfaces, max Number of nodes for user-defined server interfaces, max.	Open IE communication		
several passive connections per port, supported ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Sk byte Data length, max. Supported Supported Supported Supported Supported Supported Application authentication Application authentication Number of sessions, max Number of sessions, max Sampling interval, min Publishing interval, min Number of server interfaces, max Number of nonitored items, recommended max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max Number of onodes for user-defined server interfaces, max Sumpling interval, min Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max Sumpling interval, min Number of nonotes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max Number of nodes for user-defined server interfaces, max Sumpling interval, min Number of nodes for user-defined server interfaces, max Number of nodes for user-defined ser	• TCP/IP	Yes	
ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. UDP Pass Data length, max. 1 472 byte Web server Supported User-defined websites Pess OPC UA Runtime license required OPC UA Server Application authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 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 server interfaces, max. Number of nodes for user-defined server interfaces, max. Succommunication functions / header	— Data length, max.	8 kbyte	
- Data length, max. ■ UDP - Data length, max. 1 472 byte Web server ■ supported ■ User-defined websites OPC UA ■ Runtime license required ■ OPC UA Server - Application authentication - Number of sessions, max. - Number of server interfaces, max. - Number of server methods, max. - Number of server interfaces, max. - Number of nodes for user-defined server interfaces, max. - Number of nodes for user-defined server interfaces, max. - Sumpling interval, min. - Number of server interfaces, max. - Number of nodes for user-defined server interfaces, max. - Number protocols ■ MODBUS Yes communication functions / header	several passive connections per port, supported	Yes	
UDP Data length, max. 1 472 byte Web server supported Subscribing websites OPC UA Runtime license required OPC UA Server Application authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 User authentication Number of sessions, max. Number of subscriptions per session, max. Number of subscriptions per session, max. Number of server methods, max. Number of server methods, max. Number of server methods, max. Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Further protocols MODBUS Yes Yes Yes Yes Yes Yes Yes Ye	• ISO-on-TCP (RFC1006)	Yes	
UDP Data length, max. 1 472 byte Web server supported Subscribing websites OPC UA Runtime license required OPC UA Server Application authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 User authentication Number of sessions, max. Number of subscriptions per session, max. Number of subscriptions per session, max. Number of server methods, max. Number of server methods, max. Number of server methods, max. Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Further protocols MODBUS Yes Yes Yes Yes Yes Yes Yes Ye	— Data length, max.	8 kbyte	
— Data length, max. Web server ● supported ● User-defined websites OPC UA ● Runtime license required ● OPC UA Server — Application authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 — 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 server methods, max. — Number of server interfaces, max. — Number of nonitored items, recommended max. — Number of server interfaces, max. — Number of nodes for user-defined server interfaces, max. Further protocols ● MODBUS Yes Yes Yes Yes Yes Yes Yes 1 472 byte Yes 1 672 1	-		
## Supported			
Supported User-defined websites Yes OPC UA Runtime license required OPC UA Server Application authentication Number of sessions, max. Number of server methods, max. Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Number of nodes for user-defined server interfaces, max. Further protocols MODBUS 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 "anonymous" or by user name & pass			
Ves OPC UA Runtime license required OPC UA Server Application authentication Sanic256Sha256 User authentication Number of sessions, max. Number of subscriptions per session, max. Sanpling interval, min. Publishing interval, min. Number of server methods, max. Number of server methods, max. Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Number of nodes for user-defined server interfaces, max. Further protocols MODBUS 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 Sanpling interval, min. 100 ms 200 ms 100 ms 200		Yes	
Runtime license required OPC UA Server Application authentication Number of subscriptions per session, max. Publishing interval, min. Number of server methods, max. Number of server methods, max. Number of server methods, max. Number of server interfaces, max. Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Further protocols MODBUS Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Yes; data access (read, write, subscribe), method call, runtime 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 mannymous" or by user name & password 10 100 ms 200 ms 200 ms 200 ms 200 ms 300 4000 Further protocols MODBUS Yes			
 Runtime license required OPC UA Server — Application authentication — Application authentication — User authentication — Number of sessions, max. — Number of subscriptions per session, max. — Publishing interval, min. — Number of server methods, max. — Number of server methods, max. — Number of server interfaces, max. — Number of nodes for user-defined server interfaces, max. Further protocols ● MODBUS Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Yes; data access (read, write, subscribe), method call, runtime license required Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license required Yes; data access (read, write, subscribe), method call, runtime license required Yes; data access (read, write, subscribe), method call, runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Rsa15			
OPC UA Server		Yes: "Basic" license required	
— Application authentication Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 — User authentication — Number of sessions, max. — Number of subscriptions per session, max. — Sampling interval, min. — Publishing interval, min. — Publishing of server methods, max. — Number of server methods, max. — Number of monitored items, recommended max. — Number of server interfaces, max. — Number of nodes for user-defined server interfaces, max. Further protocols ■ MODBUS Yes Communication functions / header	•		
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 monitored items, recommended max. 1 000 - Number of server interfaces, max. 2 - Number of nodes for user-defined server interfaces, max. 2 Further protocols • MODBUS Yes communication functions / header			
 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. Number of nodes for user-defined server interfaces, max. Further protocols MODBUS Yes Communication functions / header 100 200 300 Yes	— Application 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. Number of nodes for user-defined server interfaces, max. Further protocols MODBUS Yes Communication functions / header 100 200 300 Yes	— User authentication	"anonymous" or by user name & password	
 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. Number of nodes for user-defined server interfaces, max. MODBUS Yes 			
 — Sampling interval, min. — Publishing interval, min. — Number of server methods, max. — Number of monitored items, recommended max. — Number of server interfaces, max. — Number of nodes for user-defined server interfaces, max. Eurther protocols ■ MODBUS Yes 			
— Publishing interval, min. — Number of server methods, max. — Number of monitored items, recommended max. — Number of server interfaces, max. — Number of nodes for user-defined server interfaces, max. Further protocols ■ MODBUS Yes communication functions / header			
 Number of server methods, max. Number of monitored items, recommended max. Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Further protocols MODBUS Yes 			
 Number of monitored items, recommended max. Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Further protocols MODBUS Yes Communication functions / header 1 000 2 000 Yes	-		
 Number of server interfaces, max. Number of nodes for user-defined server interfaces, max. Further protocols MODBUS Yes 			
— Number of nodes for user-defined server interfaces, max. Further protocols ■ MODBUS Yes communication functions / header			
max. Further protocols • MODBUS communication functions / header			
Further protocols • MODBUS communication functions / header		2 000	
MODBUS Yes communication functions / header			
communication functions / header	·	Yes	
OT COMMINICATION			
	O/ Oshimumodion		

supported	Yes	
• 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	100 KHZ	
Potential separation digital inputs	No	
Potential separation digital inputs between the channels, in groups of	No 1	
between the channels, in groups of Petential apparation digital outputs	1	
Potential separation digital outputs	Von	
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 Interference immunity against discharge of static	Yes	
electricity acc. to IEC 61000-4-2 — Test voltage at air discharge	8 kV	
-		
— Test voltage at contact discharge	6 kV	
Interference immunity to cable-borne interference	Voc	
• 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 induc	ced by high-frequency fields	
Interference immunity against high-frequency radiation	Yes	
acc. to IEC 61000-4-6		
Emission of radio interference acc. to EN 55 011		

 Limit class A, for use in industrial areas 	Yes; Group 1
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	
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 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 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 Shock testing.	Yes
tested according to IEC 60068-2-27	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
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 / head	der	
adjustable	Yes	
Dimensions		
Width	90 mm	
Height	100 mm	
Depth	75 mm	
Weights		
Weight, approx.	370 g	

11/7/2023

last modified: