## **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	
<ul> <li>Programming package</li> </ul>	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+	
<ul> <li>Rated value (DC)</li> </ul>	24 V
<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
<ul> <li>permissible range, upper limit (DC)</li> </ul>	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 <sup>2</sup> ·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
<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	with SIMATIC memory card
Backup	
• present	Yes
• maintenance-free	Yes
<ul><li>without battery</li></ul>	Yes
CPU processing times	

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	
<ul><li>Number, max.</li></ul>	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	
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, 2 signal modules
Fime 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	200 0/110/10/10/20 0
Number of digital inputs	8; Integrated
of which inputs usable for technological functions  Source/sink input	6; HSC (High Speed Counting) Yes
Number of simultaneously controllable inputs	165
all mounting positions	
— up to 40 °C, max.	8
Input voltage	0
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)	13 V DC at 2.3 IIIA
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
— рагантетендаріе	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
Output voltage	
• for signal "0", max.	0.1 V; with 10 kOhm load
• for signal "1", min.	20 V
-	

<ul><li>for signal "1" rated value</li></ul>	
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	
<ul> <li>Voltage</li> </ul>	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	
<ul> <li>Resolution with overrange (bit including sign), max.</li> </ul>	10 bit
<ul> <li>Integration time, parameterizable</li> </ul>	Yes
<ul> <li>Conversion time (per channel)</li> </ul>	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	<ul> <li>Activation/deactivation of IO Devices</li> </ul>	Yes
Updating time	<ul> <li>Number of IO Devices that can be simultaneously</li> </ul>	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 abort data.
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 notes for user-defined server interfaces, max. — Number of notes for user-defined server interfaces, max. — Number of notes for user-defined server interfaces, max. — Number of server interfaces, max. — Number of notes for user-defined server interfaces, max. — Number of notes for user-defined server interfaces, max. — Number of notes for user-defined server interfaces, max. — Number of notes for user-defined server interfaces, max. — Number of notes for user-defined server interfaces, max. — Number of notes for user-defined server interfaces, max. — Number of notes for user-defined server interfaces, max. — Number of notes for user-defined server interfaces, max. — Number of notes for user-defined server interfaces, max. — Number of notes for user-defined server interfaces, max. — Number of notes for user-defined server interfaces, max. — Number of notes for user-defined server interfaces, max. — Out the province of 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	<ul> <li>several passive connections per port, supported</li> </ul>	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		
<ul> <li>Runtime license required</li> <li>OPC UA Server</li> <li>— Application authentication</li> <li>— Application authentication</li> <li>— User authentication</li> <li>— Number of sessions, max.</li> <li>— Number of subscriptions per session, max.</li> <li>— Publishing interval, min.</li> <li>— Number of server methods, max.</li> <li>— Number of server methods, max.</li> <li>— Number of server interfaces, max.</li> <li>— Number of nodes for user-defined server interfaces, max.</li> <li>Further protocols</li> <li>● MODBUS</li> <li>Yes; "Basic" license required</li> <li>Yes; data access (read, write, subscribe), method call, runtime license required</li> <li>Yes; data access (read, write, subscribe), method call, runtime license required</li> <li>Yes; "Basic" license required</li> <li>Yes; data access (read, write, subscribe), method call, runtime license required</li> <li>Yes; data access (read, write, subscribe), method call, runtime license required</li> <li>Yes; data access (read, write, subscribe), method call, runtime license required</li> <li>Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Rsa15</li></ul>		
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		
<ul> <li>Number of sessions, max.</li> <li>Number of subscriptions per session, max.</li> <li>Sampling interval, min.</li> <li>Publishing interval, min.</li> <li>Number of server methods, max.</li> <li>Number of monitored items, recommended max.</li> <li>Number of server interfaces, max.</li> <li>Number of nodes for user-defined server interfaces, max.</li> </ul> Further protocols <ul> <li>MODBUS</li> <li>Yes</li> </ul> Communication functions / header <ul> <li>100</li> <li>200</li> <li>300</li> </ul> Yes	— Application authentication	
<ul> <li>Number of sessions, max.</li> <li>Number of subscriptions per session, max.</li> <li>Sampling interval, min.</li> <li>Publishing interval, min.</li> <li>Number of server methods, max.</li> <li>Number of monitored items, recommended max.</li> <li>Number of server interfaces, max.</li> <li>Number of nodes for user-defined server interfaces, max.</li> </ul> Further protocols <ul> <li>MODBUS</li> <li>Yes</li> </ul> Communication functions / header <ul> <li>100</li> <li>200</li> <li>300</li> </ul> Yes	— User authentication	"anonymous" or by user name & password
<ul> <li>Number of subscriptions per session, max.</li> <li>Sampling interval, min.</li> <li>Publishing interval, min.</li> <li>Number of server methods, max.</li> <li>Number of monitored items, recommended max.</li> <li>Number of server interfaces, max.</li> <li>Number of nodes for user-defined server interfaces, max.</li> <li>MODBUS</li> <li>Yes</li> </ul>		
<ul> <li>— Sampling interval, min.</li> <li>— Publishing interval, min.</li> <li>— Number of server methods, max.</li> <li>— Number of monitored items, recommended max.</li> <li>— Number of server interfaces, max.</li> <li>— Number of nodes for user-defined server interfaces, max.</li> <li>Eurther protocols</li> <li>■ MODBUS</li> <li>Yes</li> </ul>		
— 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		
<ul> <li>Number of server methods, max.</li> <li>Number of monitored items, recommended max.</li> <li>Number of server interfaces, max.</li> <li>Number of nodes for user-defined server interfaces, max.</li> <li>Further protocols</li> <li>MODBUS</li> <li>Yes</li> </ul>		
<ul> <li>Number of monitored items, recommended max.</li> <li>Number of server interfaces, max.</li> <li>Number of nodes for user-defined server interfaces, max.</li> <li>Further protocols</li> <li>MODBUS</li> <li>Yes</li> </ul> Communication functions / header 1 000 2 000 Yes	-	
<ul> <li>Number of server interfaces, max.</li> <li>Number of nodes for user-defined server interfaces, max.</li> <li>Further protocols</li> <li>MODBUS</li> <li>Yes</li> </ul>		
— 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	
<ul> <li>Status/control variable</li> </ul>	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	
Forcing	Yes
Diagnostic buffer	
present	Yes
Traces	
<ul> <li>Number of configurable Traces</li> </ul>	2
<ul> <li>Memory size per trace, max.</li> </ul>	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
<ul> <li>between the channels, in groups of</li> </ul>	1
Potential separation digital outputs	
Potential separation digital outputs	Yes
between the channels	No
<ul> <li>between the channels, in groups of</li> </ul>	1
EMC	
Interference immunity against discharge of static electricity	
Interference immunity against discharge of static	Yes
electricity acc. to IEC 61000-4-2	
<ul> <li>Test voltage at air discharge</li> </ul>	8 kV
Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	
<ul> <li>Interference immunity on supply lines acc. to IEC 61000- 4-4</li> </ul>	Yes
• Interference immunity on signal cables acc. to IEC 61000-	Yes
4-4 Interference immunity against voltage surge	
Interference infinitivadaliist voitage surge	Voc
, , , , , ,	Yes
<ul> <li>Interference immunity on supply lines acc. to IEC 61000- 4-5</li> </ul>	
• Interference immunity on supply lines acc. to IEC 61000-	ced by high-frequency fields
<ul> <li>Interference immunity on supply lines acc. to IEC 61000- 4-5</li> <li>Interference immunity against conducted variable disturbance inducted variable disturbance inducted</li></ul>	ced by high-frequency fields Yes
Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance induction Interference immunity against high-frequency radiation acc. to IEC 61000-4-6	
Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance induction.  Interference immunity against high-frequency radiation acc. to IEC 61000-4-6  Emission of radio interference acc. to EN 55 011	Yes
Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance induction Interference immunity against high-frequency radiation acc. to IEC 61000-4-6	

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
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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
<ul> <li>horizontal installation, min.</li> </ul>	-20 °C
<ul> <li>horizontal installation, max.</li> </ul>	60 °C
<ul> <li>vertical installation, min.</li> </ul>	-20 °C
vertical installation, max.	50 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
Operation, min.	795 hPa
Operation, max.	1 080 hPa
Storage/transport, min.	660 hPa
Storage/transport, max.	1 080 hPa
Altitude during operation relating to sea level	
Installation altitude, min.	-1 000 m
Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	5 500 HI, Nestrictions for installation dilitades 2 500 HI, see mandal
Operation, max.	95 %; no condensation
Vibrations	95 %, no condensation
	2 a (m/a²) wall magnified 4 a (m/a²) DIM wail
<ul> <li>Vibration resistance during operation acc. to IEC 60068- 2-6</li> <li>Operation, tested according to IEC 60068-2-6</li> </ul>	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail Yes
Shock testing	160
tested according to IEC 60068-2-27	Vec: IEC 68. Part 2.27 half eine: strangth of the shock 45 c (pack volus)
• tested according to IEC 60006-2-27	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
·	Yes
Protection level: Read/write protection     Protection level: Complete protection	
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	V
adjustable	Yes
Dimensions	

Width	90 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	370 g

last modified: 11/7/2023 🖸