SIEMENS

Data sheet

6ES7215-1AF40-0XB0



SIMATIC S7-1200F, CPU 1215 FC, 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 150 KB

General information	
Product type designation	CPU 1215FC 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)	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)	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
²t	0.5 A ² ·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	L+ minus 4 V DC min.
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
• integrated	150 kbyte
• expandable	No
Load memory	
 integrated 	4 Mbyte
 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card
Backup	
present	Yes
maintenance-free	Yes

 without battery 	Yes
CPU processing times	
	0.09 us: / instruction
for bit operations, typ.	0.08 μs; / instruction 1.7 μs; / instruction
for word operations, typ. for floating point arithmetic, typ.	$2.3 \ \mu\text{s}; / \text{instruction}$
CPU-blocks	2.5 µs, / instruction
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
	± 60 s/month at 25 °C
 Deviation per day, max. 	100 S/Hohimat 25°C
Digital insults	
Digital inputs	d de lada avecta el
Number of digital inputs	14; Integrated
Number of digital inputs of which inputs usable for technological functions 	6; HSC (High Speed Counting)
Number of digital inputs • of which inputs usable for technological functions Source/sink input	-
Number of digital inputs of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs	6; HSC (High Speed Counting)
Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions	6; HSC (High Speed Counting) Yes
Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max.	6; HSC (High Speed Counting)
Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage	6; HSC (High Speed Counting) Yes 14
Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage • Rated value (DC)	6; HSC (High Speed Counting) Yes 14 24 V
Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage • Rated value (DC) • for signal "0"	6; HSC (High Speed Counting) Yes 14 24 V 5 V DC at 1 mA
Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage • Rated value (DC) • for signal "0" • for signal "1"	6; HSC (High Speed Counting) Yes 14 24 V
Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage • Rated value (DC) • for signal "0" • for signal "1" Input delay (for rated value of input voltage)	6; HSC (High Speed Counting) Yes 14 24 V 5 V DC at 1 mA
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Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage • Rated value (DC) • for signal "0" • for signal "1" Input delay (for rated value of input voltage) for standard inputs — parameterizable	6; HSC (High Speed Counting) Yes 14 24 V 5 V DC at 1 mA 15 V DC at 2.5 mA 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four
Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions — up to 40 °C, max. Input voltage • Rated value (DC) • for signal "0" • for signal "1" Input delay (for rated value of input voltage) for standard inputs — parameterizable — at "0" to "1", min.	6; HSC (High Speed Counting) Yes 14 24 V 5 V DC at 1 mA 15 V DC at 2.5 mA 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four 0.2 ms
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Number of digital inputs • of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions	6; HSC (High Speed Counting) Yes 14 14 24 V 5 V DC at 1 mA 15 V DC at 2.5 mA 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four 0.2 ms 12.8 ms Yes Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz

• on lamp load, max. 5	.5 A
• on lamp load, max. 5	
Output voltage	W
Output voltage	
	.1 V; with 10 kOhm load
	0 V
Output current	
5	.5 A
	.1 mA
Output delay with resistive load	
	μs
	μs
Switching frequency	
	00 kHz
Relay outputs	
Number of relay outputs	
Cable length	
	00 m
	50 m
Analog inputs	
Number of analog inputs 2	
Input ranges	
• Voltage Ye	/es
Input ranges (rated values), voltages	
• 0 to +10 V	/es
— Input resistance (0 to 10 V) ≥ ²	100k ohms
Cable length	
• shielded, max.	00 m; twisted and shielded
Analog outputs	
Number of analog outputs 2	
Output ranges, current	
• 0 to 20 mA	/es
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	0 bit
	/es
	25 µs
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
	0 bit
Encoder	
Connectable encoders	
	/es
1. Interface	
	PROFINET
	/es
	/es
	/es
	/es
Interface types	
	/es
Number of ports 2	
	/es
Protocols	
	/es
	'es
	és

 Web server Web server Web server Yes, as MRP client PROFINET IO Controller Transmission rate, max. 100 Motive Services PROFINET ionum mode No Instructionous mode No INT PROFInency Number of connectable IO Devices, max. 16 Number of connectable IO Devices for RT, max. Instruction of the update startup, max. Number of connectable IO Devices for RT, max. Instruction of the update startup in the update time also depends on the connectable IO Devices for RT. Advict in the instruction of IO Devices for RT. Advict interview of the update time also depends on the communication component set for PROFINET IO. Devices PROFINET IO Devices for RT. PROFINET IO Devices for RT. Advict interview of the update time also depends on the communication component set for PROFINET IO. The number of IO devices and the quantity of configured user data. PROFINET IO Devices PROFINET IO Devices PROFINET IO Devices for RT. PROFINET IO Devices for RT. PROFINET IO Devices PROFINET IO Devices PROFINET IO Yes encryption with TLS V1.3 pre-selected No IFT No IFT Ves (M 1243.5 (master) or CM 1242.5 (lawe) required PROFINET IO Yes encryption with TLS V1.3 pre-selected No IFT Ves (M 1243.5 (master) or CM 1242.5 (lawe) required OPCI ID Yes (M 1243.5 (master) or CM 1242.5 (lawe) required OPCI ID Yes (M 1243.5 (master) or CM 1242.5 (lawe) required OPCI ID Yes (M 1243.5 (master) or CM 1242.5 (lawe) required OPCI ID<		
• Media redundancy Yes; as MRP client PROFINET IC Controller 100 Mbbb • Transmission rate, max. 100 Mbbb • PSOP communication Yes; encryption with TLS V1.3 pre-selected • IFT No • PROFINET IC devices with prioritized startup. 16 • Number of Condectable IO Devices (FRT, max. 16 • Number of connectable IO Devices (FRT, max. 15 • Activation/deactivation (IO Devices (FRT, max. 15 • Activation/deactivation (IO Devices (FRT, max. 15 • Updating time 15 • Activation/deactivation (IO Devices (FRT, max. 15 • Updating time 15 • Durber of Connouncicable IO Devices (FRT, max. 16 • Updating time 15 • Durber of IO Devices (FRT, max. 15 • Updating time 15 • Durber of IO Devices (FRT, max. 16 • Updating time 16 • Durber of IO Devices (FRT, max. 16 • DefOr Communication Yes; encryption with TLS V1.3 pre-selected • IPROFILET IO Device Yes; encryption with TLS V1.3 pre-selected <tr< td=""><td>Open IE communication</td><td>Yes; Optionally also encrypted</td></tr<>	Open IE communication	Yes; Optionally also encrypted
PROFINET ID Controller 100 Mbl//s Services - PG/OP communication Yes; encryption with TLS V1.3 pre-selected - Isothermous mode No - PROFIlerargy No - Profilerargy No - Number of concetable IO Devices, max. 16 - Aurober of concetable IO Devices for RT, max. 16 - Aurober of Concetable IO Devices for RT, max. 16 - Aurober of Concetable IO Devices for RT, max. 16 - Aurober of Concetable IO Devices for RT, max. 16 - Aurober of Concetable IO Devices for RT, max. 16 - Aurober of Concetable IO Devices for RT, max. 16 - Aurober of Concetable IO Devices for RT, max. 16 - Workbor Of Devices max 16 - Number of OD Devices for RT, max. 16 - Number of IO Devices max 16 - Number of IO Devices max 16 - Report of IO Devices max 16 Services - PGOP communication Yes; encryption with TLS V1.3 pre-selected - IRT No No - PROFInerray Yes - Saved device Yes; encryption with TLS V1.3 pre-selected - IRT No - Report Profile Yes - Saved device Yes - PROFILenorgy Yes<		
• Transmission rate, max. 100 Mbits Services - - PGVOP communication Yes; encryption with TLS V1.3 pre-selected - IRT No - PROFINET Services Yes - No No - PROFINET Services Yes - Number of 10 devices, max. 16 - Number of connectable IO Devices, max. 16 - Authoring the Connectable IO Devices, max. 16 - Authoring the IO Devices, max. 16 - Authoring activated deactivated, max. 16 - Authoring activated attrain the an be an imuture analyse of the update time also depends on the communication component set for PROFINET IO, on the number of IO devices Services - PGOP communication Yes; on Configured user datasis Services <td></td> <td>Yes; as MRP client</td>		Yes; as MRP client
Services Yes; encryption with TLS V1.3 pre-selected PGOP communication No IRT No PROFilerenzy No Muniber of IO devices with prioritized startup, max. 16 Number of connectable IO Devices, max. 16 Muniber of connectable IO Devices for RT, max. 18 Advalond/seachystation of IO Devices Yes d which in line, max. 16 d which in line, max. 16 d which in line, max. 16 devision/seativation Yes devision 10 Devices Services Muniber of Dovices Updating time The minimum value of the update time elice depends on the continue only advalativate/deactivated, max. Updating time The minimum value of the update time elice depends on the continue only advalativate/deactivated, max. BROP communication Yes; encryption with TLS V1.3 pre-selected No		400 MFW-
		100 MDI7S
- Isochronous mode No - IRT No - PROFIenergy No - Number of locevices with prioritized startup, 16 - Number of connectable IO Devices, max. 16 - Number of connectable IO Devices for RT, 16 - Mumber of IO Devices Startup 16 - Of which in line, max. 16 - Updating time 7 - Updating time 7 - Updating time 7 Services - - PROF Port IO Device Yes; encryption with TLS V1.3 pre-selected - Isochronous mode No - IRT No - RPOFIenergy Yes; encryption with TLS V1.3 pre-selected - IRT No - RPOFIenergy Yes; encryption with TLS V1.3 pre-selected - RPOFIenergy Yes; OR 1243-5 (master) or CM 1242-5 (slave) required PROFIBUS Yes; CM 1243-2 required - PROFIBUS Yes; CM 1243-2 required PROFIBUS Yes; CM 1243-2 required PROFIBUS Yes; SMRP redundancy manager and/or MRP client - MRP Yes; SMRP redundancy manager an		Veey energy with TLC V/4.2 pro-colocted
 - IRT No No No Construction No Advisological status No Advisological status No PROFINET IO Device Services PROFINET IO Device Services PROFINET IO Device Services PROFINET No Yes: encryption with TLS V1.3 pre-selected IFT No PROFINET O Controllers with shared device. Protocols Yes: OPC On PROFINET IO Yes: CM 1243-5 (master) or CM 1242-5 (slave) required OPC UA Yes: CM 1243-5 (master) or CM 1242-5 (slave) required OPC IOA Yes: CM 1243-5 (master) or CM 1242-5 (slave) required OPC UA Yes: CM 1243-5 (master) or CM 1242-5 (slave) required OPC IOA Yes: CM 1243-5 (master) or CM 1242-5 (slave) required OPC IOA Yes: CM 1243-5 (master) or CM 1242-5 (slave) required OPC IOA No State Intereverse Yes: CM 1243-5 (master)		
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 — Prioritized startup, max. — Number of IO devices with prioritized startup, max. — Number of connectable IO Devices, max. — Number of connectable IO Devices for RT, max. — of which in line, max. — Activation/deactivation of IO Devices Yes — Activation/deactivation of IO Devices — Activation/deactivation, max. — Updating time — Updating time — PGOP communication — PFOOP communication — PFOOP communication — PFOOP communication — PFOOP communication — PROFINET IO Device Services — PFOOP communication — PROFINET With TLS V1.3 pre-selected — IB achronous mode No — RT — RT No — RTR — Nomber of IO Controllers with shared device, max. — Nomber of IO Controllers with shared device, max. — Shared device — Nomber of IO Controllers with shared device, max. — PROFIBUS — PROFIBUS — Yes CDP/P Yes CD 1242-5 (slave) required OPC LA Yes CD 1242-5 (slave) required OPC LA Yes CD/PIP Yes No SMMP Yes OPC II MAP Yes No SMMP Yes OPC II PROFINET Yes OPC II PROFINET Yes OPC II PROFINET Yes OPC II		
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 Number of connectable IO Devices for RT, max. of which in line, max. Activation/deactivation of IO Devices Yes Activation/deactivation of IO Devices Yes Activation/deactivation of IO Devices Yes Activation/deactivated/deactivated, max. Updating time Updating time Updating time Updating time PGIOP communication PGIP communication PGIP communication PGIP communication PGIA length, max. PGIA length, max. 		10
max.16 Activation/deactivation of IO DevicesYes Number of IO Devices that can be simultaneously activate/deactivated, max.8 Updating timeThe 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 DeviceServices PG/OP communicationYes; encryption with TLS V1.3 pre-selected IRTNo IRTNo Shared deviceYes Number of IO Controllers with shared device, max.2 Number of IO Controllers with shared device, max.Yes: CM 1243-5 (master) or CM 1242-5 (slave) requiredPROFINET IOYes:PROFINET OYes: CM 1243-5 (master) or CM 1242-5 (slave) requiredPROFIBUSYes: CM 1243-5 (master) or CM 1242-5 (slave) requiredOPC UAYes: CM 1243-5 (master) or CM 1242-5 (slave) requiredOPC IDYesOPC IDYesOPC IDYesOPC IDYesOPC IDYesOPC IDYesOPC IDYesOPC IDYesOPC IDYesOPC IDYesNoSinter facePROFIBUSYesOPC IDYesOPC IDYesOPC IDYesNoSinter faceNoYesOPC IDYesNoYesNoYesOPC IDYesRedurdancy modeYesID	 — Number of connectable IO Devices, max. 	16
	 — Number of connectable IO Devices for RT, 	16
	max.	
	— of which in line, max.	16
simultaneously activated/deactivated, max. 	 Activation/deactivation of IO Devices 	Yes
communication component set for PROFINET IO, on the number of IO devices and the quantity of configured user data. PROFINET IO Device Services - PG(P) communication - Isochronous mode No - RPOFInerryy Yes: encryption with TLS V1.3 pre-selected No - PROFInerryy Yes: - Shared device - Number of IO Controllers with shared device, max. Protocols Supports protocol for PROFINET IO Yes: CM 1243-5 (master) or CM 1242-5 (slave) required OPC UA Yes: OPC UA Server AS-Interface Yes OPC UA Yes: as MRP redundancy manager and/or MRP client No SIMMP Yes ODPC Yes: as MRP redundancy manager and/or MRP client No SIMMIC communication Yes OPCHIP No SIMMIC communication • TCP/IP • Data length, max. • Bobon-TCP (RFC1006) Yes • Data length, ma		8
PROFINET IO Device Services PG/OP communication Yes; encryption with TLS V1.3 pre-selected IRT No PROFIenergy Yes Shared device Yes Number of IO Controllers with shared device, max. 2 Protocols 2 Supports protocol for PROFINET IO Yes PROFIBUS Yes; CM 1243-5 (master) or CM 1242-5 (slave) required OPC UA Yes; CM 1243-2 required Protocols Yes; CM 1243-2 required PROFIBUS Yes; CM 1243-2 required OPC UA Yes; CM 1243-2 required Protocols (Ethrenet) Yes • TCP/IP Yes • DHCP No • SIMMP Yes • DHCP Yes • DHCP Yes • LLDP Yes; as MRP redundancy manager and/or MRP client MRPD No SIMATIC communication Yes • ST routing Yes Open LE communication Yes • DDP Yes Data length, max. 8 kbyte • DBP Yes	— Updating time	communication component set for PROFINET IO, on the number of IO
	PROFINET IO Device	
Isochronous modeNo- IRTNo- PROFlenergyYes- Shared deviceYes- Number of IO Controllers with shared device, max.2ProtocolsSupports protocol for PROFINET IOYesYes: CM 1243-5 (master) or CM 1242-5 (slave) requiredOPC UAYes: OPC UA ServerAS-InterfaceYes: CM 1243-2 requiredProtocols (Ethernet)Yes• TCP/IPYes• DCCPYes• DCPYes• LDPYes• LDPYes• LDPYes• CP/IPYes• DCPYes• DENYes• Data length, max.8 kbyte• UDPYes• Data length, max.1472 byteWeb serverYes• SupportedYes• Data length, max.1472 byte	Services	
- IRTNo- PROFlenergyYes- Shared deviceYes- Number of IO Controllers with shared device, max.2ProtocolsVesSupports protocol for PROFINET IOYesPROFIBUSYes; CM 1243-5 (master) or CM 1242-5 (slave) requiredOPC UAYes; OPC UA ServerAS-InterfaceYes; CM 1243-2 requiredProtocols (Ethernet)Yes• TCP/IPYes• DHCPYes• DLCPYes• DLCPYes• LLDPYesRedundancy modeYes; as MRP redundancy manager and/or MRP client- MRPYes; as MRP redundancy manager and/or MRP client- MRPDNoSIMATIC communicationYes• TCP/IPYes- Data length, max.8 kbyte• UDPYes- Data length, max.8 kbyte• UDPYes- Data length, max.8 kbyte• UDPYes- Data length, max.1472 byteWeb serverYes- Data length, max.8 kbyte• UDPYes- Data length, max.1472 byteWeb serverYes- SupportedYes- Data length, max.1472 byteWeb serverYes- SupportedYes- Data length, max.1472 byteWeb serverYes- SupportedYes- Data length, max.Yes- Data length, max.1472 byteWeb serverYes<	— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
PROFlenergyYes Shared deviceYes Number of IO Controllers with shared device,2max.2ProtocolsSupports protocol for PROFINET IOYesYes; CM 1243-5 (master) or CM 1242-5 (slave) requiredOPC UAYes; OPC UA ServerAS-InterfaceYes; CM 1243-2 requiredProtocols (Ethernet)YesTOFPIPYes0HCPNo\$SMMPYes0LDPYesNedia redundancyYes; as MRP redundancy manager and/or MRP client MRPYes; as MRP redundancy manager and/or MRP client MRPDNoSIMATIC communicationYes• TOFP/IPYes Data length, max.8 kbyte• ISO-on-TCP (RFC1006)Yes Data length, max.1472 byteWeb serverYes Data length, max.1472 byteWeb serverYes SupportedYes Data length, max.1472 byte	— Isochronous mode	No
Shared device Yes Number of IO Controllers with shared device, max. 2 Protocols 2 Supports protocol for PROFINET IO Yes PROFIBUS Yes; CM 1243-5 (master) or CM 1242-5 (slave) required OPC UA Yes; CM 1243-5 (master) or CM 1242-5 (slave) required OPC UA Yes; CM 1243-2 required PROfocols Yes; CM 1243-2 required Protocols (Ethernet) Yes • TCP/IP Yes • TCP/IP Yes • DHCP No • SMMP Yes • DCP Yes • LLDP Yes Media redundancy Yes; as MRP redundancy manager and/or MRP client - MRP Yes; as MRP redundancy manager and/or MRP client - MRPD No SIMATIC communication Yes • ST routing Yes Open IE communication Yes • DAta length, max. 8 kbyte • IDP Yes - Data length, max. 8 kbyte • UDP Yes - Data length, max. 8 kbyte • UDP Yes - Data length, max. 8 kbyte • UDP Yes - Data length, max. 9 kbyte • UDP	— IRT	No
Number of IO Controllers with shared device, max. 2 Protocols Supports protocol for PROFINET IO Yes PROFIBUS Yes; CM 1243-5 (master) or CM 1242-5 (slave) required OPC UA Yes; OPC UA Server AS-Interface Yes; OPC UA Server ODEP Yes • DCP Yes • DCP Yes • LLDP Yes - MRP Yes; as MRP redundancy manager and/or MRP client - MRPD No SIMATIC communication Yes • TCP/IP Yes - Data length, max. 8 kbyte • ISO-on-TCP (REC1006) Yes - Data length, max. 1472 byte Web server Yes • UDP Yes <	- PROFlenergy	Yes
max. Protocols Supports protocol for PROFINET IO Yes 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) Yes • DHCP No • SNMP Yes • DLCP Yes • LLDP Yes Redundancy mode Yes; as MRP redundancy manager and/or MRP client - MRP Yes; as MRP redundancy manager and/or MRP client - MRP Yes; as MRP redundancy manager and/or MRP client - MRP Yes; as MRP redundancy manager and/or MRP client - Orting Yes Open IE communication Yes • TCP/IP Yes - Data length, max. 8 kbyte • IDP Yes - Data length, max. 8 kbyte • UDP Yes - Data length, max. 1472 byte Web server Yes - Data length, max. 1472 byte Web server Yes • Usprided Yes	— Shared device	Yes
max. Protocols Supports protocol for PROFINET IO Yes 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) Yes • DHCP Yes • DHCP No • SNMP Yes • DLCP Yes • LLDP Yes Redundancy mode Yes; as MRP redundancy manager and/or MRP client - MRP Yes; as MRP redundancy manager and/or MRP client - MRP Yes; as MRP redundancy manager and/or MRP client - MRP Yes; as MRP redundancy manager and/or MRP client - ORP No SIMATIC communication Yes • ST routing Yes Open IE communication Yes • TCP/IP Yes - Data length, max. 8 kbyte • UDP Yes - Data length, max. 1472 byte Web server Yes - Data length, max. 1472 byte Web server Yes	 — Number of IO Controllers with shared device. 	2
Supports protocol for PROFINET IO Yes PROFIBUS Yes; CM 1243-5 (master) or CM 1242-5 (slave) required OPC UA Yes; OPC UA Server AS-Interface Yes; CM 1243-2 required Protocols (Ethernet) • • TCP/IP Yes • DHCP No • SNMP Yes • DLCP Yes • LLDP Yes Redundancy mode Yes; as MRP redundancy manager and/or MRP client - MRPD No SIMATIC communication • • S7 routing Yes Open IE communication • • Data length, max. 8 kbyte • ISO-on-TCP (RFC1006) Yes - Data length, max. 8 kbyte • UDP Yes - Data length, max. 1472 byte Web server • • Usproted Yes	max.	
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) ************************************	Protocols	
OPC UA Yes; OPC UA Server AS-Interface Yes; CM 1243-2 required Protocols (Ethernet) * • TCP/IP Yes • DHCP No • SIMP Yes • DCP Yes • DCP Yes • LLDP Yes Redundancy mode Yes; as MRP redundancy manager and/or MRP client - MRP Yes; as MRP redundancy manager and/or MRP client - MRPD No SIMATIC communication Yes • S7 routing Yes Open IE communication Yes • ISO-on-TCP (RFC1006) Yes - Data length, max. 8 kbyte • ISO-on-TCP (RFC1006) Yes - Data length, max. 8 kbyte • UDP Yes - Data length, max. 1472 byte Web server * • User-defined websites Yes	Supports protocol for PROFINET IO	Yes
AS-Interface Yes; CM 1243-2 required Protocols (Ethernet) • • TCP/IP Yes • DHCP No • SNMP Yes • DCP Yes • LLDP Yes Redundancy mode Yes; as MRP redundancy manager and/or MRP client - MRP Yes; as MRP redundancy manager and/or MRP client - MRPD No SIMATIC communication Yes • S7 routing Yes Open IE communication • TCP/IP Yes - Data length, max. 8 kbyte • ISO-on-TCP (RFC1006) Yes - Data length, max. 8 kbyte • UDP Yes - Data length, max. 1472 byte Web server • supported Yes • User-defined websites Yes	PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
Protocols (Ethernet) Yes • TCP/IP Yes • DHCP No • SNMP Yes • DCP Yes • LLDP Yes Redundancy mode Yes Media redundancy	OPC UA	
TCP/IPYes• DHCPNo• SNMPYes• DCPYes• LLDPYes• LLDPYesRedundancy mode	AS-Interface	Yes; CM 1243-2 required
• DHCPNo• SNMPYes• DCPYes• LLDPYes• LLDPYesRedundancy modeMedia redundancy MRPYes; as MRP redundancy manager and/or MRP client MRPDNoSIMATIC communicationYesSIMATIC communicationYes• S7 routingYesOpen IE communicationYes• Data length, max.8 kbyte• ISO-on-TCP (RFC1006)Yes- Data length, max.8 kbyte• UDPYes- Data length, max.1 472 byteWeb serverYes• SupportedYes• User-defined websitesYes	Protocols (Ethernet)	
• SIMPYes• DCPYes• LLDPYesRedundancy modeYesMedia redundancyYes; as MRP redundancy manager and/or MRP client MRPYes; as MRP redundancy manager and/or MRP client MRPDNoSIMATIC communicationYes• S7 routingYes• TCP/IPYes- Data length, max.8 kbyte• ISO-on-TCP (RFC1006)Yes- Data length, max.8 kbyte• UDPYes- Data length, max.1 472 byteWeb serverYes- SupportedYes• User-defined websitesYes	• TCP/IP	Yes
• DCPYes• LLDPYesRedundancy modeMedia redundancy- MRPYes; as MRP redundancy manager and/or MRP client- MRPDNoSIMATIC communication• S7 routingYesOpen IE communication• TCP/IPYes- Data length, max.8 kbyte• ISO-on-TCP (RFC1006)Yes- Data length, max.8 kbyte• UDPYes- Data length, max.1 472 byteWeb server• supportedYes• User-defined websitesYes	• DHCP	No
• LLDPYesRedundancy modeMedia redundancy- MRPYes; as MRP redundancy manager and/or MRP client- MRPDNoSIMATIC communication• S7 routingYesOpen IE communication• TCP/IPYes- Data length, max.8 kbyte• ISO-on-TCP (RFC1006)Yes- Data length, max.8 kbyte• UDPYes- Data length, max.1 472 byteWeb serverYes• supportedYes• User-defined websitesYes	• SNMP	Yes
Redundancy mode MRP Yes; as MRP redundancy manager and/or MRP client MRPD No SIMATIC communication Yes • S7 routing Yes Open IE communication Yes • TCP/IP Yes Data length, max. 8 kbyte • ISO-on-TCP (RFC1006) Yes Data length, max. 8 kbyte • UDP Yes Data length, max. 1 472 byte Web server Yes • supported Yes • User-defined websites Yes	• DCP	Yes
Media redundancyMRPYes; as MRP redundancy manager and/or MRP clientMRPDNoSIMATIC communicationYes• S7 routingYesOpen IE communicationYesData length, max.8 kbyte• ISO-on-TCP (RFC1006)YesData length, max.8 kbyte• UDPYesData length, max.1 472 byteWeb serverYesData length, max.1 472 byte	• LLDP	Yes
MRPYes; as MRP redundancy manager and/or MRP clientMRPDNoSIMATIC communicationYes• S7 routingYesOpen IE communicationYes• TCP/IPYesData length, max.8 kbyte• ISO-on-TCP (RFC1006)YesData length, max.8 kbyte• UDPYesData length, max.1472 byteWeb serverYes• supportedYes• supportedYes• USer-defined websitesYes	Redundancy mode	
MRPD No SIMATIC communication Yes Open IE communication Yes • TCP/IP Yes Data length, max. 8 kbyte • ISO-on-TCP (RFC1006) Yes Data length, max. 8 kbyte • UDP Yes Data length, max. 1472 byte Web server Yes • Supported Yes • USer-defined websites Yes	Media redundancy	
SIMATIC communication • S7 routing Yes Open IE communication • TCP/IP Yes - Data length, max. 8 kbyte • ISO-on-TCP (RFC1006) Yes - Data length, max. 8 kbyte • UDP Yes - Data length, max. 1 472 byte Web server Yes • supported Yes • USer-defined websites Yes	— MRP	Yes; as MRP redundancy manager and/or MRP client
• S7 routingYesOpen IE communicationYes• TCP/IPYes- Data length, max.8 kbyte• ISO-on-TCP (RFC1006)Yes- Data length, max.8 kbyte• UDPYes- Data length, max.1 472 byteWeb serverYes• supportedYes• User-defined websitesYes	— MRPD	No
Open IE communication • TCP/IP Yes - Data length, max. 8 kbyte • ISO-on-TCP (RFC1006) Yes - Data length, max. 8 kbyte • UDP Yes - Data length, max. 1 472 byte Web server Yes • supported Yes • User-defined websites Yes	SIMATIC communication	
• TCP/IPYes- Data length, max.8 kbyte• ISO-on-TCP (RFC1006)Yes- Data length, max.8 kbyte• UDPYes- Data length, max.1 472 byteWeb serverImage: Supported for the supported for the supported for the supported for the support of	S7 routing	Yes
— Data length, max.8 kbyte• ISO-on-TCP (RFC1006)Yes— Data length, max.8 kbyte• UDPYes— Data length, max.1 472 byteWeb server1• supportedYes• User-defined websitesYes	Open IE communication	
 ISO-on-TCP (RFC1006) Yes Data length, max. Kbyte UDP Yes Data length, max. 1 472 byte Web server supported Ves User-defined websites Yes 	• TCP/IP	Yes
— Data length, max. 8 kbyte • UDP Yes — Data length, max. 1 472 byte Web server Yes • supported Yes • User-defined websites Yes	— Data length, max.	8 kbyte
• UDP Yes — Data length, max. 1 472 byte Web server Yes • supported Yes • User-defined websites Yes	 ISO-on-TCP (RFC1006) 	Yes
— Data length, max. 1 472 byte Web server	— Data length, max.	8 kbyte
Web server • supported • User-defined websites Yes	• UDP	Yes
 supported User-defined websites Yes 	— Data length, max.	1 472 byte
User-defined websites Yes	Web server	
	supported	Yes
OPC UA	User-defined websites	Yes
	OPC UA	

- Dunting licence required	Var "Daria" license required
 Runtime license required OPC UA Server 	Yes; "Basic" license required Yes; data access (read, write, subscribe), method call, runtime license
	required
 Application authentication 	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
 Number of sessions, max. 	10
 Number of subscriptions per session, max. 	50
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
 Number of server methods, max. 	20
 Number of monitored items, max. 	1 000
— Number of server interfaces, max.	2
— Number of nodes for user-defined server interfaces, max.	2 000
Further protocols	
MODBUS	Yes
Communication functions	
S7 communication	
 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, bit memories, DBs, peripheral I/Os (without fail-safe), times, counters
Forcing	
Forcing	Yes; peripheral inputs/outputs (without fail-safe)
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 4: With integrated outputs
Number of positioning axes via pulse-direction interface PID controller	4; With integrated outputs
	Yes4
Number of pulse outputs	_ 44
Number of pulse outputs Limit frequency (pulse)	4 100 kHz
Potential senaration	
Potential separation Potential separation digital inputs	

Potential separation digital inputs	No
between the channels, in groups of	1
Potential separation digital outputs	Vee
 Potential separation digital outputs between the channels 	Yes
	No 1
between the channels, in groups of	
EMC	
Interference immunity against discharge of static electricity	Vee
 Interference immunity against discharge of static electricity acc. to IEC 61000-4-2 	Yes
— Test voltage at air discharge	8 kV
— Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	
 Interference immunity on supply lines acc. to IEC 61000-4-4 	Yes
 Interference immunity on signal cables acc. to IEC 61000-4-4 	Yes
Interference immunity against voltage surge	
 Interference immunity on supply lines acc. to IEC 61000-4-5 	Yes
Interference immunity against conducted variable disturbance	e induced by high-frequency fields
 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 	Yes
Emission of radio interference acc. to EN 55 011	
 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
Highest safety class achievable in safety mode	-
Performance level according to ISO 13849-1	PLe
• SIL acc. to IEC 61508	SIL 3
Ambient conditions	
Free fall	
Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation min. 	0°C
• max.	55 °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. 	0°0
 horizontal installation, max. 	55 °C
 vertical installation, min. 	0°C
 vertical installation, max. 	45 °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/s ²) wall mounting, 1 g (m/s ²) 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	
Programming	
Programming language	
— LAD	Yes; incl. failsafe
— FBD	Yes; incl. failsafe
— 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
Cycle time monitoring	
adjustable	Yes
Dimensions	
Width	130 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	500 g
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