SIEMENS

Data sheet

6ES7214-1AG40-0XB0



SIMATIC S7-1200, CPU 1214C, compact CPU, DC/DC/DC, onboard I/O: 14 DI 24 V DC; 10 DO 24 V DC; 2 AI 0-10 V DC, Power supply: DC 20.4-28.8V DC, Program/data memory 100 KB

General information	
Product type designation	CPU 1214C DC/DC/DC
Firmware version	V4.4
Engineering with	
 Programming package 	STEP 7 V16 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
l²t	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 	100 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 up; / instruction
for bit operations, typ.	0.08 μs; / instruction 1.7 μs; / instruction
for word operations, typ. for floating point arithmetic, typ.	2.3 μs; / 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.	10 kbyte
Flag	
• Size, max.	8 kbyte; Size of bit memory address area
Local data	
• per priority class, max.	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area	
Process image	
 Inputs, adjustable 	1 kbyte
 Outputs, adjustable 	1 kbyte
Hardware configuration	
Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
Time of day	
Clock	
Hardware clock (real-time)	Yes
Backup time	480 h; Typical
Deviation per day, max.	±60 s/month at 25 °C
• Deviation per day, max.	
Digital inpute	
Digital inputs	14: Integrated
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
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• on lamp load, max.5 WOutback voidage• for signal 10°, max.0.1 V, with 10 kOhm load• for signal 11° rated value0.5 A• or signal 11° rated value0.5 A• or signal 11° rated value0.5 A• or signal 11° rated value0.5 A• 0° to 11°, max.0.1 mAOutput current. max.0.1 mAOutput current. max.0.1 mAOutput current. max.100 kHz• 0° to 11°, max.5 µs• statching frequency• of the pulse outputs. with resistive load, max.100 kHz• shutching frequency0• shutching frequency0• shutching frequency0• shutching frequency0• shutching frequency0• shutching frequency100 m.• shutching frequency2• shutching frequency3• of the	Switching capacity of the outputs	
Output sollands - for signal "0", max, 0.1 V: with 10 kOhm bad • for signal "1", min. 20 V Output carrient - 0.5 A • for signal "1" restdual current, max. 0.1 mA Output delay with resistive load - • '1' to '0', max. 5 µs • '1' to '0', max. 5 µs • '1' to '0', max. 5 µs • Wither of relay outputs 0 • Wither of relay outputs 0 • On the puise outputs 0 • I'' to '0'', max. 500 m • Wither of relay outputs 0 • I''s to '0', max. 500 m • I''s to '0', max. 500 m • I''s to '0', max. 500 m • Insidelided, max. 500 m • Inside outputs 2 • Inside outputs 2 • O''s to '0'' Yes Input renges (rated values), votages - • Input residence (rate outputs 0 • O''s to '0'' Yes • Alotage outputs 0 Analoge outputs 0 <tr< td=""><td></td><td></td></tr<>		
• for signal "0", max.0.1 V; with 10 kOhm load• for signal "1" rated value20 V• or signal "1" rated value0.5 A• or signal "1" rated value0.5 A• or to signal "1" rated value0.5 A• or to signal "1", max.1 µs• or to signal "1", max.5 µs• or to signal or to signal "1", max.100 kHz• or to signal or to signal max.100 kHz• shielded, max.00 on• shielded, max.50 on• shielded, max.50 on• shielded, max.50 on• or to signal or to signal or to signal or to signal max.150 m• Number of ralog inputs2• or to signal or to signal or to signal or to signal max.150 m• or to signal or to signal or to signal max.150 m• or to signal max.150 m• or to signal or to s	 on lamp load, max. 	5 W
• for signal "1" min.20 VOutput eurem0.5 A• for signal "1" rated value0.5 A• for signal "1" rated value0.1 mAOutput deay with resistive load1 µs• full for ("1", max.5 µs• full for (pr.", max.5 µs• full for (pr.", max.100 kHzRelay outputs0• of the putputs, with resistive load, max.100 kHz• of the putputs, with resistive load, max.100 kHz• of the putputs, with resistive load, max.100 kHz• of the putputs, with resistive load, max.100 m• of the putputs, with resistive load, max.100 m• unshielded, max.100 m• of the putputs2• funct resistance (10 to 10 V)2100k ohms• Cable length0• Linderde, max.100 m; twisted and shieldedAnalog outputs0Analog outputs0• Analog outputs0• Analog outputs0• Interface100 m; twisted and shieldedAnalog outputs0• Interface22 µs• Ecodor with overnape (bit includer griggin), max.10 bit• Analog outputsYes• Analog outputsYes• InterfaceYes• Analog outputsYes• Analog outputsYes• Analog outputsYes• Analog outputs<	Output voltage	
Output current 0.5 A • for signal "0" residual current, max. 0.1 mA Output delay with resistive load 1 µs • 0"10 "0", max. 5 µs Switching frequency. 100 kHz • Number of realy outputs 0 • Rain and the public outputs, with resistive load, max. 100 kHz • Relay outputs 0 • Rain her of realy outputs 0 • Rain her of realy outputs 000 m • Switching frequency. 100 kHz • Rain her of realy outputs 000 m • Switching frequency. 100 kHz • Switching frequency. 100 m • Switching frequency. Yes • Input resistance (0 to 10 V) Yes • Switching frequency. 100 m; twisted and shielded Analog outputs 0 • Raing outputs 0	-	0.1 V; with 10 kOhm load
• for signal "1" rate value0.5 A• for signal "0" residual current, max.0.1 mAOutput desiy with resistive load1 µs• 1" to "0", max.5 µsSwitching frequency100 kHz• of the puise outputs, with resistive load, max.100 kHzResizy outputs0Cable length0• of the puise outputs, with resistive load, max.500 m• of the puise outputs, with resistive load, max.500 m• of the puise outputs, with resistive load, max.500 m• of the fueld, max.500 m• of the fueld of max.700 m• of the fueld of max.700 m• of the fueld of max.700 m• of the fueld of max.2100 chms• of the fueld of max.100 m• of the fueld of max.0• of the fueld of max.10 om twisted and shieldedAnalog outputs0• Cable lengtYes• Conversion time (par channel)625 µs• Conversion time (par channel)Yes• Conversion time (par channel)Yes• AutorgotilonYes• AutorgotilonYes• Conversion time (par channel)Yes• Conversion time (par channel)Yes• AutorgotilonYes• AutorgotilonYes• AutorgotilonYes• A	 for signal "1", min. 	20 V
• or signal "0" residual current. max.0.1 mAOutput disiay with resistive load1 μB• "0" to "1", max.5 μB• "0" to "1", max.10 kHz• of the pulse outputs, with resistive load, max.100 kHz• Number of relay outputs0• Cable length100 kHz• shielded, max.100 m• shielded, max.100 m• shielded, max.100 m• of training inputs2• for dig outputs2• for dig outputs100 m: twisted and shielded• for dial og outputs0• for dial og o	Output current	
Output days with resistive load 1 µs • "1" to "ty max. 5 µs Switching frequency 100 kHz • of the pubse odputs, with resistive load, max. 100 kHz Relay outputs 0 • Number of relay outputs 2 • Input registed, max. 150 m • Analog inputs 2 • Voltage Yes • Input resistence (0 to 10 V) Yes • Input resistence (0 to 10 V) Yes • On my tresistence (0 to 10 V) Yes • Analog outputs 0 Rating value generation for the inputs 100 my twisted and shielded Analog outputs 0 Rating value generation for the inputs 10 bit • Resolution with overrange (bit including sign), max. 10 bit • Resolution with overrange (bit including sign), max. 10 bit • Resolution with overrange (bit including sign), max. 10 bit • Resolution with overrange (bit including sign), max. 10 bit <td> for signal "1" rated value </td> <td>0.5 A</td>	 for signal "1" rated value 	0.5 A
• ''' 'o ''', 'max.1 µs5 µsSwitching frequency• of the pulse outputs, with resistive load, max.100 kHzRelay outputs0Cable length150 m• shielded, max.500 m• shielded, max.150 m• shielded, max.150 m• shielded, max.2Input ranges2• for alog inputs2• VoltageYes• VoltageYes• for the VYes• for the VYes• for the NVYes• for the NVYes• lingut ranges (raded values), voltages0• Stelded, max.00 m; twisted and shieldedAnalog outputs0Cable length100 m; twisted and shielded• shielded, max.10 bit• shielded, max.10 bit• shielded, max.00 m; twisted and shieldedAnalog outputs0Cable length10 bit• shielded, max.10 bit• stell10 bit• stell	 for signal "0" residual current, max. 	0.1 mA
• • 1'to '0', max.5 μsSwitching frequency• 00 kH2• off the publes outputs, with resistive load, max.100 kH2Relay outputs0Cable length500 m• shielded, max.500 m• unshielded, max.150 mAnalog Inputs2Number of analog inputs2• O to +10 VYes• O to +10 VYes• Input resigner (rated values), votages• 100 m; kvisted and shielded• O to +10 VYes• shielded, max.100 m; kvisted and shieldedAnalog unputs0• Shielded, max.100 m; kvisted and shieldedAnalog outputs0• Input resigner (bit including sign), max.10 bit N• shielded, max.10 bit N• shielded, max.10 bit N• shielded, max.10 bit N• shielded, max.0Analog outputs0• Shielded, max.10 bit N• shielded, max.Yes• Conversion time (resolution with oversing time (resolution w	Output delay with resistive load	
Switching frequency-• of the pulse outputs, with resistive load, max.100 kHz• Number of relay outputs0• Shielded, max.500 m• Inshielded, max.500 m• Inshielded, max.500 m• Inshielded, max.500 m• Inshielded, max.150 mAnalog inputs2• NotageYes• Input ranges (rated values), votagesYes• Input ranges (rated values), votages-• Input ranges (rated values), votages-• Input resistance (0 to 10 V)Yes• Input resistance (0 to 10 V)100 m; twisted and shieldedAnalog outputs0Cable length-• Input resistance (0 to 10 V)100 m; twisted and shieldedAnalog outputs0Cable length-• Inbigration and conversion time/resolution per channelYes• Integration and conversion time/resolution per channelYes• Integration time, parameterizableYes• Oriversion time (per channel)626 µs• Conversion time (per channel)Yes• AutorcosingYes• AutorcosingYes• AutorcosingYes• AutorcosingYes• Number of of of the inputYes• Number of of of the inputYes• AutorcosingYes• AutorcosingYes• PROFINET IO ControllerYes• Number of of of the inputYes• Number of of of the inputYes• Number of of the input </td <td>• "0" to "1", max.</td> <td>1 µs</td>	• "0" to "1", max.	1 µs
Switching frequency-• of the pulse outputs, with resistive load, max.100 kHz• Number of relay outputs0• Shielded, max.500 m• Inshielded, max.500 m• Inshielded, max.500 m• Inshielded, max.500 m• Inshielded, max.150 mAnalog inputs2• NotageYes• Input ranges (rated values), votagesYes• Input ranges (rated values), votages-• Input ranges (rated values), votages-• Input resistance (0 to 10 V)Yes• Input resistance (0 to 10 V)100 m; twisted and shieldedAnalog outputs0Cable length-• Input resistance (0 to 10 V)100 m; twisted and shieldedAnalog outputs0Cable length-• Inbigration and conversion time/resolution per channelYes• Integration and conversion time/resolution per channelYes• Integration time, parameterizableYes• Oriversion time (per channel)626 µs• Conversion time (per channel)Yes• AutorcosingYes• AutorcosingYes• AutorcosingYes• AutorcosingYes• Number of of of the inputYes• Number of of of the inputYes• AutorcosingYes• AutorcosingYes• PROFINET IO ControllerYes• Number of of of the inputYes• Number of of of the inputYes• Number of of the input </td <td></td> <td>5 µs</td>		5 µs
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Relay outputs 0 • Number of relay outputs 0 • Shielded, max. 500 m • unshielded, max. 150 m Analog inputs 2 Number of analog inputs 2 Input ranges • • Votage Yes - Input resistance (0 to 10 V) > 2100k ohms - Input resistance (0 to 10 V) 2100k ohms - Input resistance (0 to 10 V) 2100k ohms - Input resistance (0 to 10 V) 2100k ohms - Input resistance (0 to 10 V) 2100k ohms - Input resistance (0 to 10 V) 2100k ohms - Input resistance (0 to 10 V) 2100k ohms - Input resistance (0 to 10 V) 2100k ohms - Input resistance (0 to 10 V) 2100k ohms - Input resistance (0 to 10 V) 2100k ohms - Analog outputs 0 Number of analog outputs 0 Number of analog outputs 0 - Integration and conversion time/resolution per channel! • Resolution with overrange (bit Including sign), max. • Conversion time (per channel) 625 µs • Interface 1 Isouterize		100 kHz
• Number of relay outputs0Gabie length500 m• unshielded, max,500 m• nushielded, max,150 mAnalog inputs2Analog inputs2• Number of analog inputs,2• VoltageYes• Nuther of analog inputs,2• Number of analog inputs,2• Nuther of analog inputs,100 c +10 V• O c +10 VYes• O t +10 VYes• O t +10 V100 c, twisted and shielded• Matter eistance (0 to 10 V)200 c hmsCable length100 m; twisted and shieldedAnalog outputs0Analog voltage100 m; twisted and shieldedIntegration and conversion time/resolution per channel10 bit• Resolution with overrange (bit Including sign), max, • Integration and conversion time/resolution per channel625 µs• Conversion time (per channel)625 µs• Conversion time (per channel)625 µs• Conversion time (per channel)625 µs• LinterfaceYes• LinterfaceYes• AutonosofiaYes• AutonosofiaYes• AutonosofiaYes• Number of ports1• Number of ports1• Number of ports1• Number of portsYes• PROFINET IO ControllerYes• PROF		
Cable length 500 m • unshielded, max. 150 m Analog inputs 2 Number of analog inputs 2 • Voitage Yes • 10 to +10 V Yes Input resistance (0 to 10 V) 2100k ohms Cable length • • shielded, max. 100 m; twisted and shielded Analog outputs 0 • Resolution with overrange (bit including sign), max. 10 bit • Integration and conversion time/resolution per channel • Resolution time, parameterizable • Resolution with overrange (bit including sign), max. 10 bit • Integration time, parameterizable Yes • Conversion time (per channel) 625 µs Encoder Yes • Autorogotistion Yes • Autoregotistion Yes • Autoregotistion Yes • Autoregotistion Yes • Number of ports 1 • Integrated switch No • PROFINET IO Controller Yes • PROFINET IO Controller Yes • PROFINET IO Contro		0
• shielded, max.500 m• unshielded, max.150 mAnalog inputs2Number of analog inputs2Input rangesVoltage• VoltageYes• Jout ranges (rated values), voltagesYes• Jout ranges (rated values), voltages2• Jout ranges (rated values), voltagesYes• Jout resistance (0 to 10 V)2• Jout resistance (0 to 10 V)2• Jout resistance (0 to 10 V)2• Shielded, max.100 m; twisted and shieldedAnalog outputs0Analog outputs0Analog value generation for the inputsIntegration and conversion time/resolution per channel10 bit• Resolution with overrange (bit including sign), max.10 bit• Integration time, parameterizableYes• 2-wire sensorYes• 2-wire sensorYes• 2-wire sensorYes• 1. InterfaceYesInterface typesInterface• Resolution with overnaleYes• AutocrossingYesInterface typesInterface types• Resolution of transmission rateYes• Number of ports1• Interface typesYes• PROFINET IO ControllerYes• Media redundancyNo• Transmission rate, max.100 Mbit/s• Bread is d	· · ·	0
• unshielded, max. 150 m Analog inputs 2 Input ranges Yes • Voltage Yes • 10 to +10 V Yes - Input resistance (0 to 10 V) 2100k ohms Cable length 700 m; twisted and shielded Analog outputs 0 Integration and conversion time/resolution per channel ************************************	-	500 m
Analog inputs 2 Number of analog inputs 2 Input ranges Yes Input ranges (rated values), voltages Yes • Voltage Yes Input ranges (rated values), voltages Yes • Input ranges (rated values), voltages Yes • Input resistance (0 to 10 V) 2100k ohms Cable length 00 m; twisted and shielded Analog outputs 0 Analog value generation for the inputs Intervalues Integration and conversion time/resolution per channel Integration time, parameterizable • Conversion time (per channel) Yes • Conversion time (per channel) 625 µs Encoder Yes • Linterface Yes Isolated Yes automatic detection of transmission rate Yes Autoregotiation Yes Interface Yes Interface switch Yes PROFINET IO Controller Yes • Number of ports 1 • integrated switch No • PROFINET IO Controller Yes • PROFINET IO Controller		
Number of analog inputs 2 Input ranges - • Votage Yes Input ranges (rated values), voltages Yes • 10 to +10 V Yes - Input resistance (0 to 10 V) Yes Cable length - • shielded, max. 100 m; twisted and shielded Analog outputs 0 Analog outputs 0 Analog value generation for the Inputs 0 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 • Conversion time (per channel) 625 µs • Interface Yes • Linterface Yes • solated Yes • Autorossing Yes • Number of ports 1 • Number of		
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• VoltageYesInput ranges (rated values), voltages• 0 to + 10 VYes• o to + 10 V≥ 100k ohmsCable length10 m; twisted and shieldedAnalog outputs0Analog outputs0Analog value generation for the inputsIntegration and conversion time/resolution per channel• Resolution with overrange (bit including sign), max10 bit• Resolution time, parameterizableYes• Conversion time (per channel)625 µsEncoder2.vire sensorYes• 2.wire sensorYes• 2.wire sensorYes• AutomogotiationYes• AutomogotiationYes• AutomogotiationYes• AutomogotiationYes• AutomogotiationYes• AutomogotiationYes• AutomogotiationYes• AutomogotiationYes• Number of ports1• PROFINET IO ControllerYes• SIMATIC communicationYes• PROFINET IO ControllerYes• Nedia redundancyYes• Nedia redundancyYes• Nedia redundancyYes• NoYes• PROFINET IO ControllerYes	Number of analog inputs	2
Input ranges (rated values), voltages Yes ● 10 v + 10 V ≥100k ohms Cable length 100 m; twisted and shielded ● shielded, max. 100 m; twisted and shielded Analog outputs 0 Analog value generation for the inputs 0 Integration and conversion time/resolution per channel 0 • Resolution with overrange (bit including sign), max. 10 bit • Integration time (per channel) 625 µs • Conversion time (per channel) 625 µs • Conversion time (per channel) 625 µs • Autonegotiation Yes - Autonegotiation Yes - Autonegotiation Yes - Autonegotiation Yes Autocrossing Yes - Number of ports 1 • Number of ports 1 • Integrated switch No Protocols Yes • PROFINET IO Controller Yes • PROFINET IO Device Yes • SIMATIC communication Yes • Open IE communication Yes • Open IE	Input ranges	
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• 2-wire sensorYes1.InterfaceIsolatedYesautomatic detection of transmission rateYesAutonegotiationYesAutocrossingYesInterface typesYes• RJ 45 (Ethernet)Yes• Number of ports1• integrated switchNoProtocolsYes• PROFINET IO ControllerYes• SIMATIC communicationYes; Optionally also encrypted• Web serverYes; Optionally also encrypted• Media redundancyNoPROFINET IO ControllerYes; Optionally also encrypted• Transmission rate, max.100 Mbit/sServicesServices	Encoder	
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Isolated Yes automatic detection of transmission rate Yes Autonegotiation Yes Autocrossing Yes Interface types Yes • RJ 45 (Ethernet) Yes • Number of ports 1 • integrated switch No Protocols Yes • PROFINET IO Controller Yes • SIMATIC communication Yes; Optionally also encrypted • Web server Yes • Media redundancy No PROFINET IO Controller Yes; Optionally also encrypted • Transmission rate, max. 100 Mbit/s	1. Interface	
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AutocrossingYesInterface types• RJ 45 (Ethernet)Yes• Number of ports1• integrated switchNoProtocols• PROFINET IO ControllerYes• PROFINET IO DeviceYes• SIMATIC communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNoPROFINET IO ControllerYes; Optionally also encrypted• Transmission rate, max.100 Mbit/sServicesServices		
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• RJ 45 (Ethernet)Yes• Number of ports1• integrated switchNo• Protocols• PROFINET IO ControllerYes• PROFINET IO DeviceYes• SIMATIC communicationYes; Optionally also encrypted• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNo• PROFINET IO ControllerNo• Transmission rate, max.100 Mbit/s• Services	_	165
• Number of ports1• integrated switchNoProtocolsProof INET IO Controller• PROFINET IO DeviceYes• SIMATIC communicationYes• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNoPROFINET IO ControllerNo• Transmission rate, max.100 Mbit/sServicesServices		
• integrated switchNoProtocols• PROFINET IO ControllerYes• PROFINET IO DeviceYes• SIMATIC communicationYes; Optionally also encrypted• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNoPROFINET IO Controller• Transmission rate, max.100 Mbit/sServicesServices		
Protocols • PROFINET IO Controller Yes • PROFINET IO Device Yes • SIMATIC communication Yes; Optionally also encrypted • Open IE communication Yes; Optionally also encrypted • Web server Yes • Media redundancy No PROFINET IO Controller 100 Mbit/s Services Yes		1
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• PROFINET IO DeviceYes• SIMATIC communicationYes• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNo• PROFINET IO Controller100 Mbit/s• ServicesYes	Protocols	
• SIMATIC communicationYes• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNo• PROFINET IO Controller100 Mbit/s• ServicesServices	PROFINET IO Controller	Yes
• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNoPROFINET IO Controller100 Mbit/s• Transmission rate, max.100 Mbit/sServices	PROFINET IO Device	Yes
• Open IE communicationYes; Optionally also encrypted• Web serverYes• Media redundancyNoPROFINET IO Controller100 Mbit/s• Transmission rate, max.100 Mbit/sServices	SIMATIC communication	Yes
• Web server Yes • Media redundancy No PROFINET IO Controller 100 Mbit/s • Transmission rate, max. 100 Mbit/s Services		
Media redundancy No PROFINET IO Controller Transmission rate, max. 100 Mbit/s Services		Yes; Optionally also encrypted
PROFINET IO Controller • Transmission rate, max. 100 Mbit/s Services	Open IE communication	
Transmission rate, max. 100 Mbit/s Services	Open IE communicationWeb server	Yes
Services	Open IE communicationWeb serverMedia redundancy	Yes
	Open IE communication Web server Media redundancy PROFINET IO Controller	Yes No
- FG/OF communication Yes	Open IE communication Web server Media redundancy PROFINET IO Controller Transmission rate, max.	Yes No
	Open IE communication Web server Media redundancy PROFINET IO Controller Transmission rate, max. Services	Yes No 100 Mbit/s

 — Isochronous mode 	No
— IRT	No
— PROFlenergy	No
— Prioritized startup	Yes
 — Number of IO devices with prioritized startup, 	16
max.	
 — Number of connectable IO Devices, max. 	16
 — Number of connectable IO Devices for RT, 	16
max.	
— of which in line, max.	16
 Activation/deactivation of IO Devices 	Yes
 — Number of IO Devices that can be 	8
simultaneously activated/deactivated, max.	
— Updating time	The minimum value of the update time also depends on the
	communication component set for PROFINET IO, on the number of IO devices and the quantity of configured user data.
PROFINET IO Device	devices and the quantity of configured user data.
Services	Ver
— PG/OP communication	Yes
— Isochronous mode	No
— IRT	No
- PROFlenergy	Yes
— Shared device	Yes
 — Number of IO Controllers with shared device, 	2
max.	
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
AS-Interface	Yes; CM 1243-2 required
Protocols (Ethernet)	
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	
Media redundancy	
— MRP	No
— MRPD	No
SIMATIC communication	
S7 routing	Yes
Open IE communication	103
	Ves
• TCP/IP	Yes 8 kbyte
— Data length, max.	8 kbyte
Data length, max.ISO-on-TCP (RFC1006)	8 kbyte Yes
 Data length, max. ISO-on-TCP (RFC1006) Data length, max. 	8 kbyte Yes 8 kbyte
 Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP 	8 kbyte Yes 8 kbyte Yes
 Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. 	8 kbyte Yes 8 kbyte
 Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server 	8 kbyte Yes 8 kbyte Yes 1 472 byte
 Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported 	8 kbyte Yes 8 kbyte Yes 1 472 byte
 Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites 	8 kbyte Yes 8 kbyte Yes 1 472 byte
 Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP 	8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes
 Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required 	8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes
 Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP 	8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes
 Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required 	8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes
 Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required OPC UA Server 	8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes Yes; "Basic" license required Yes; Data access (read, write, subscribe), runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15,
 Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required OPC UA Server Application authentication 	8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes Yes; "Basic" license required Yes; Data access (read, write, subscribe), runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
 Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP Data length, max. Web server supported User-defined websites OPC UA Runtime license required OPC UA Server Application authentication User authentication 	8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes Yes Yes ' Yes; "Basic" license required Yes; Data access (read, write, subscribe), runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password
 Data length, max. ISO-on-TCP (RFC1006) Data length, max. UDP 	8 kbyte Yes 8 kbyte Yes 1 472 byte Yes Yes Yes Yes Yes Yes; "Basic" license required Yes; Data access (read, write, subscribe), runtime license required Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256 "anonymous" or by user name & password 5

	100	
— Sampling interval, min.	100 ms	
— Publishing interval, min.	200 ms	
 Number of monitored items, max. 	500	
 Number of server interfaces, max. 	2	
 Number of nodes for user-defined server 	1 000	
interfaces, max.		
Further protocols	N	
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	8 connections for open user communication (active or passive): TSEND_C, TRCV_C, TCON, TDISCON, TSEND and TRCV, 8 CPU/CPU connections (Client or Server) for GET/PUT data, 6 connections for dynamic assignment to GET/PUT or open user communication	
Test commissioning functions		
Status/control		
Status/control variable	Yes	
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters	
Forcing		
Forcing	Yes	
Diagnostic buffer		
• present	Yes	
Traces		
 Number of configurable Traces 	2	
Memory size per trace, max.	512 kbyte	
Interrupts/diagnostics/status information		
Diagnostics indication LED		
RUN/STOP LED	Yes	
• ERROR LED	Yes	
MAINT LED	Yes	
Integrated Functions		
Frequency measurement	Yes	
controlled positioning	Yes	
Number of position-controlled positioning axes, max.	8	
Number of positioning axes via pulse-direction interface	4; With integrated outputs	
PID controller	Yes	
Number of alarm inputs	4	
Number of pulse outputs	4	
Limit frequency (pulse)	4 100 kHz	
Potential separation		
Potential separation digital inputs	Ne	
Potential separation digital inputs	No	
between the channels, in groups of	1	
Potential separation digital outputs	Vee	
Potential separation digital outputs	Yes	
between the channels 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 electricity acc. to IEC 61000-4-2 	Yes	
— Test voltage at air discharge	8 kV	
— Test voltage at all discharge — Test voltage at contact discharge	6 kV	
root totage at contact abonaige		

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 disturbanc	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
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	0.5 m, nye times, in product package
min.	-20 °C
	60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no
• max.	adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical
 horizontal installation, min. 	-20 °C
 horizontal installation, max. 	60 °C
 vertical installation, min. 	-20 °C
 vertical installation, max. 	50 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
• Operation, min.	795 hPa
 Operation, max. 	1 080 hPa
 Storage/transport, min. 	660 hPa
Storage/transport, max.	1 080 hPa
Altitude during operation relating to sea level	
Installation altitude, min.	-1 000 m
Installation altitude, max.	2 000 m
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
— FBD	Yes
— SCL	Yes
Know-how protection	
 User program protection/password protection 	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
 Protection level: Write protection 	Yes
 Protection level: Read/write protection 	Yes
 Protection level: Complete protection 	Yes
Cycle time monitoring	
adjustable	Yes
Dimensions	
Width	110 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	415 g
last modified:	3/2/2021 🖸