SIEMENS

24.02

SIPLUS fail-safe CPUs

Overview

The fail-safe SIPLUS S7-1200 Controllers are based on the SIPLUS S7-1200 standard CPUs and offer additional safety-related functions.

They can be used for safety-oriented tasks according to IEC 61508 up to SIL 3 and ISO 13849-1 up to PL e.

Safety-related programs are created in the TIA Portal engineering framework. The STEP 7 Safety engineering tool offers commands, operations and blocks for safety-related programs in the LAD and FBD languages. To this end, there is a library with pre-configured blocks for safety-related functions certified by the German Technical Inspectorate (TÜV).

- Standard controller with integrated safety functions:
  - Standardized and convenient diagnostic functions for standard and safety
  - Uniform symbols, data consistency, ...
- Modular system with scalable range of CPUs and expandable I/O quantity structure:
  - One engineering for standard and fail-safe automation
  - Use of the standard I/O modules together with the fail-safe I/O modules in the central system
  - Integrated standard PROFINET functionalities for PROFINET controllers and PROFINET iDevice services
  - Connection of distributed standard I/O via fieldbus such as PROFINET or PROFIBUS
  - F-library certified by the German Technical Inspectorate (TÜV) for all common safety functions
  - Free programming of the safety logic using FBD and LAD
  - Standard-compliant printout of the F program
- One integrated engineering for both standard and safety from S7-1200 to S7-300/400/1500 and WinAC RTX F:
  - STEP 7 Safety Basic for easy engineering of the CPU 1200 FC
  - STEP 7 Safety Advanced for the entire fail-safe SIMATIC S7 portfolio
- Integrated system diagnostics of the CPUs, for standard and safety:
  - Consistent plain text display of system diagnostics information in the TIA Portal, HMI and web server
  - Messages are updated even if the CPU is in STOP state
  - System diagnostics integrated in the CPU firmware. Configuration by user not required
  - The diagnostics is automatically updated on configuration changes.
- 2 fail-safe compact controllers with graded performances in the versions DC/DC/DC and DC/DC/relay

Characteristics	SIPLUS CPU 1214 FC	SIPLUS CPU 1215 FC
Variants	DC/DC/DC, DC/DC/relay	DC/DC/DC
Work memory, integrated	125 KB	150 KB
Load memory, integrated	4 MB	4 MB
Memory card	SIMATIC Memory Card (optional)	SIMATIC Memory Card (optional)
Standard digital inputs/outputs, integrated	14/10	14/10
Standard analog inputs, integrated	2	2
Standard analog outputs, integrated	-	2
Process image	1024 bytes for inputs, 1024 bytes for outputs	1024 bytes for inputs, 1024 bytes for outputs
Expansion by signal board	Max. 1	Max. 1
Expansion by signal modules	Max. 8	Max. 8
Expansion by communications modules	Max. 3	Max. 3

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

Application

SIPLUS S7-1200 is the ideal controller for local and distributed automation solutions with safety requirements in the central system.

Via the engineering, the fail-safe SIMATIC S7-1200 controller makes preassembled, tested and TÜV/German Technical Inspectorate-certified blocks available for implementing all common safety functions, such as EMERGENCY STOP or protective door monitoring, with or without interlocking.

- CPU 1214 FC:
  The compact CPU for standard and fail-safe applications

- CPU 1215 FC:
  The compact CPU with two PROFINET ports for standard and fail-safe applications

Design

Mechanical features

- Horizontal or vertical mounting on DIN rail or direct mounting in the cabinet using integral drill holes (not horizontal).
- Terminal block for independent wiring for all CPUs and associated components.

Technical specifications

Article number	**6AG1214-1AF40-5XB0** SIPLUS S7-1200 CPU 1214FC DC/DC/DC	**6AG1214-1HF40-5XB0** SIPLUS S7-1200 CPU 1214FC DC/DC/RLY	**6AG1215-1AF40-5XB0** SIPLUS S7-1200 CPU 1215FC DC/DC/DC
General information			
Product type designation	CPU 1214FC DC/DC/DC	CPU 1214FC DC/DC/Relay	CPU 1215FC DC/DC/DC
Engineering with			
• STEP 7 TIA Portal configurable/integrated from version	see entry ID: 109746275	see entry ID: 109746275	see entry ID: 109746275
Supply voltage			
Rated value (DC)			
• 24 V DC	Yes	Yes	Yes
permissible range, lower limit (DC)	20.4 V	20.4 V	20.4 V
permissible range, upper limit (DC)	28.8 V	28.8 V	28.8 V
Load voltage L+			
• Rated value (DC)	24 V	24 V	24 V
• permissible range, lower limit (DC)	20.4 V	20.4 V	5 V
• permissible range, upper limit (DC)	28.8 V	28.8 V	250 V
Input current			
Current consumption (rated value)			500 mA; CPU only
Current consumption, max.	1 500 mA; max. with all expansion accessories	1 500 mA; max. with all expansion accessories	1 500 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V DC	12 A; at 28.8 V	12 A; at 28.8 V DC
I^2t			0.5 $A^2 \cdot s$
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.	L+ minus 4 V DC min.	L+ minus 4 V DC min.
Power loss			
Power loss, typ.	12 W	12 W	12 W
Memory			
Work memory			
• integrated	125 kbyte	125 kbyte	150 kbyte
• expandable	No	No	No
Load memory			
• integrated	4 Mbyte	4 Mbyte	4 Mbyte
• Plug-in (SIMATIC Memory Card), max.	with SIMATIC memory card	with SIMATIC memory card	with SIMATIC memory card
Backup			
• present	Yes; maintenance-free	Yes; maintenance-free	Yes
• maintenance-free			Yes
• without battery	Yes	Yes	Yes
CPU processing times			
for bit operations, typ.	0.08 µs; / instruction	0.08 µs; / Operation	0.085 µs; / instruction
for word operations, typ.	1.7 µs; / instruction	1.7 µs; / Operation	1.7 µs; / instruction
for floating point arithmetic, typ.	2.3 µs; / Operation	2.3 µs; / instruction	2.3 µs; / instruction
CPU-blocks			
Number of blocks (total)	1 024; OBs, FBs, FCs, DBs	1 024; OBs, FBs, FCs, DBs	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	Limited only by RAM for code	Limited only by RAM for code
Data areas and their retentivity			
Retentive data area (incl. timers, counters, flags), max.	10 kbyte	10 kbyte	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			
I/O address area			
• Inputs	1 024 byte	1 024 byte	
• Outputs	1 024 byte	1 024 byte	
Process image			
• Inputs, adjustable	1 024 byte	1 024 byte	1 kbyte

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• Outputs, adjustable	1 024 byte	1 024 byte	1 kbyte
Hardware configuration			
Number of modules per system, max.	8; 3 comm. modules, 1 signal board, 8 signal modules	3 comm. modules, 1 signal board, 8 signal modules	3 comm. modules, 1 signal board, 8 signal modules
Time of day			
Clock			
• Hardware clock (real-time)	Yes	Yes	Yes
• Backup time	480 h; typical; 12 days min. at 40 °C	480 h; typical; 12 days min. at 40 °C	480 h; Typical
• Deviation per day, max.	±60 s per month	±60 s per month	60 s/month at 25 °C
Digital inputs			
Number of digital inputs	14	14	14; Integrated
• of which inputs usable for technological functions	6; HSC (High Speed Counting)	6; HSC (High Speed Counting)	6; HSC (High Speed Counting)
Source/sink input	Yes	Yes	Yes
Number of simultaneously controllable inputs			
all mounting positions			
— up to 40 °C, max.	14; 14 inputs at 55 °C horizontal or 45 °C vertical	14; 14 inputs at 55 °C horizontal or 45 °C vertical	14
Input voltage			
• Rated value (DC)	24 V; DC at 4 mA nominal	24 V; DC at 4 mA nominal	24 V
• for signal "0"	5 V DC at 1 mA	5 V DC at 1 mA	5 V DC at 1 mA
• for signal "1"	15 V DC at 2.5 mA	15 V DC at 2.5 mA	15 V DC at 2.5 mA
Input current			
• for signal "1", typ.	4 mA; nominal	4 mA; nominal	
Input delay (for rated value of input voltage)			
for standard inputs			
— parameterizable	0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms	0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 µs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms	Yes; 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
— at "0" to "1", min.	0.1 µs	0.1 µs	0.2 ms
— at "0" to "1", max.	20 ms	20 ms	12.8 ms
for interrupt inputs			
— parameterizable	Yes	Yes	Yes
for technological functions			
— parameterizable	Yes; Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz	Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30 kHz	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	500 m; 50 m for technological functions	500 m; 50 m for technological functions
• unshielded, max.	150 m; for technological functions: No	300 m; for technological functions: No	300 m; for technological functions: No
Digital outputs			
Number of digital outputs	10	10; Relays	10; Relays
• of which high-speed outputs	4; 100 kHz Pulse Train Output		
Short-circuit protection	No; to be provided externally	No; to be provided externally	
Switching capacity of the outputs			
• with resistive load, max.	0.5 A	2 A	2 A
• on lamp load, max.	5 W	30 W; 30 W with DC, 200 W with AC	30 W with DC, 200 W with AC
Output voltage			
• for signal "0", max.	0.1 V; with 10 kOhm load		
• for signal "1", min.	20 V		
Output current			
• for signal "1" rated value	0.5 A		
• for signal "0" residual current, max.	0.1 mA		
Output delay with resistive load			
• "0" to "1", max.	1 µs	10 ms; max.	10 ms; max.
• "1" to "0", max.	3 µs	10 ms; max.	10 ms; max.
Switching frequency			
• of the pulse outputs, with resistive load, max.	100 kHz		
Relay outputs			
• Number of relay outputs	0	10	10
• Number of operating cycles, max.		mechanically 10 million, at rated load voltage 100 000	mechanically 10 million, at rated load voltage 100 000
Cable length			
• shielded, max.	500 m	500 m	500 m
• unshielded, max.	150 m	150 m	150 m
Analog inputs			
Number of analog inputs	2	2	2
Input ranges			
• Voltage	Yes; 0 to 10V	Yes; 0 to 10V	Yes
Input ranges (rated values), voltages			

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• 0 to +10 V	Yes	Yes	Yes
— Input resistance (0 to 10 V)	≥100k ohms	≥100k ohms	≥100k ohms
Cable length			
• shielded, max.	100 m; shielded, twisted pair	100 m; shielded, twisted pair	100 m; twisted and shielded
Analog outputs			
Number of analog outputs	0	0	2
Output ranges, current			
• 0 to 20 mA			Yes
Cable length			
• shielded, max.	100 m; shielded, twisted pair	100 m; shielded, twisted pair	
Analog value generation for the inputs			
Integration and conversion time/resolution per channel			
• Resolution with overrange (bit including sign), max.	10 bit	10 bit	10 bit
• Integration time, parameterizable	Yes	Yes	Yes
• Conversion time (per channel)	625 µs	625 µs	625 µs
Analog value generation for the outputs			
Integration and conversion time/resolution per channel			
• Resolution with overrange (bit including sign), max.			10 bit
Encoder			
Connectable encoders			
• 2-wire sensor	Yes	Yes	Yes
1. Interface			
Interface type	PROFINET	PROFINET	PROFINET
Isolated	Yes	Yes	Yes
automatic detection of transmission rate	Yes	Yes	Yes
Autonegotiation	Yes	Yes	Yes
Autocrossing	Yes	Yes	Yes
Interface types			
• RJ 45 (Ethernet)	Yes	Yes	Yes
• Number of ports			2
• integrated switch			Yes
Protocols			
• PROFINET IO Controller	Yes	Yes	Yes
• PROFINET IO Device	Yes	Yes	Yes
• SIMATIC communication			Yes
• Open IE communication			Yes
• Web server			Yes
• Media redundancy			Yes; as MRP client
PROFINET IO Controller			
• Transmission rate, max.			100 Mbit/s
Services			
— PG/OP communication			Yes
— Isochronous mode			No
— IRT			No
— PROFIenergy			No
— Prioritized startup			Yes
— Number of IO devices with prioritized startup, max.	16	16	16
— Number of connectable IO Devices, max.			16
— Number of connectable IO Devices for RT, max.			16
— of which in line, max.			16
— Activation/deactivation of IO Devices			Yes
— Number of IO Devices that can be simultaneously activated/deactivated, max.			8
— 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			
Services			
— PG/OP communication			Yes
— Isochronous mode			No
— IRT			No

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— PROFIenergy			Yes
— Shared device			Yes
— Number of IO Controllers with shared device, max.			2
Protocols			
Supports protocol for PROFINET IO	Yes	Yes	Yes
PROFIsafe	No	No	Yes
PROFIBUS	Yes; CM 1243-5 required	Yes; CM 1243-5 required	Yes; CM 1243-5 required
AS-Interface	Yes	Yes	Yes; CM 1243-2 required
Protocols (Ethernet)			
• TCP/IP	Yes	Yes	Yes
• DHCP			No
• SNMP			Yes
• DCP			Yes
• LLDP			Yes
Redundancy mode			
Media redundancy			
— MRP			Yes; as MRP client
— MRPD			No
SIMATIC communication			
• S7 routing			Yes
Open IE communication			
• TCP/IP	Yes	Yes	Yes
— Data length, max.			8 kbyte
• ISO-on-TCP (RFC1006)	Yes	Yes	Yes
— Data length, max.			8 kbyte
• UDP	Yes	Yes	Yes
— Data length, max.			1 472 byte
Web server			
• supported	Yes	Yes	Yes
• User-defined websites	Yes	Yes	Yes
Further protocols			
• MODBUS	Yes	Yes	Yes
communication functions / header			
S7 communication			
• supported	Yes	Yes	Yes
• as server	Yes	Yes	Yes
• as client	Yes	Yes	Yes
• User data per job, max.			See online help (S7 communication, user data size)
Number of connections			
• overall			16; dynamically
Test commissioning functions			
Status/control			
• Status/control variable	Yes	Yes	Yes
• Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing			
• Forcing	Yes	Yes	Yes
Diagnostic buffer			
• present	Yes	Yes	Yes
Traces			
• Number of configurable Traces	2; Up to 512 KB of data per trace are possible	2; Up to 512 KB of data per trace are possible	2
• Memory size per trace, max.			512 kbyte
Integrated Functions			
Frequency measurement	Yes	Yes	Yes
controlled positioning	Yes	Yes	Yes
Number of position-controlled positioning axes, max.			8
Number of positioning axes via pulse-direction interface			Up to 4 with SB 1222
PID controller	Yes	Yes	Yes
Number of alarm inputs	4	4	4
Number of pulse outputs	4	4	
Limit frequency (pulse)	100 kHz		
Potential separation			
Potential separation digital inputs			
• Potential separation digital inputs	Functional isolation (Optocoupler)	Functional isolation (Optocoupler)	500V AC for 1 minute
• between the channels, in groups of			1
Potential separation digital outputs			
• Potential separation digital outputs			Relays
• between the channels			No
• between the channels, in groups of			2

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Permissible potential difference			
between different circuits	500 V DC between 24 V DC and 5 V DC	500 V DC between 24 V DC and 5 V DC	
EMC			
Interference immunity against discharge of static electricity			
• Interference immunity against discharge of static electricity acc. to IEC 61000-4-2	Yes	Yes	Yes
— Test voltage at air discharge	8 kV	8 kV	8 kV
— Test voltage at contact discharge	6 kV	6 kV	6 kV
Interference immunity to cable-borne interference			
• Interference immunity on supply lines acc. to IEC 61000-4-4	Yes	Yes	Yes
• Interference immunity on signal cables acc. to IEC 61000-4-4	Yes	Yes	Yes
Interference immunity against voltage surge			
• Interference immunity on supply lines acc. to IEC 61000-4-5	Yes	Yes	Yes
Interference immunity against conducted variable disturbance induced by high-frequency fields			
• Interference immunity against high-frequency radiation acc. to IEC 61000-4-6	Yes	Yes	Yes
Emission of radio interference acc. to EN 55 011			
• Limit class A, for use in industrial areas	Yes; Group 1	Yes; Group 1	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	Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011	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	IP20	IP20
Standards, approvals, certificates			
KC approval			Yes
Marine approval	Yes	Yes	Yes
Highest safety class achievable in safety mode			
• Performance level according to ISO 13849-1	PLe	PLe	PLe
• SIL acc. to IEC 61508	SIL 3	SIL 3	SIL 3
Ambient conditions			
Free fall			
• Fall height, max.	0.3 m; five times, in product package	0.3 m; five times, in product package	0.3 m; five times, in product package
Ambient temperature during operation			
• min.	-25 °C; = Tmin	-25 °C; = Tmin	-25 °C; = Tmin
• max.	55 °C; = Tmax	55 °C; = Tmax	55 °C; = Tmax
• horizontal installation, min.	-25 °C	-25 °C	-25 °C; = Tmin
• horizontal installation, max.	55 °C	55 °C	55 °C; = Tmax
• vertical installation, min.	-25 °C	-25 °C	-25 °C; = Tmin
• vertical installation, max.	45 °C	45 °C	45 °C; = Tmax
Ambient temperature during storage/transportation			
• min.	-40 °C	-40 °C	-40 °C
• max.	70 °C	70 °C	70 °C
Air pressure acc. to IEC 60068-2-13			
• Operation, min.	795 hPa	795 hPa	
• Operation, max.	1 080 hPa	1 080 hPa	
• Storage/transport, min.			660 hPa
• Storage/transport, max.			1 139 hPa
Altitude during operation relating to sea level			
• Installation altitude above sea level, max.	2 000 m	2 000 m	2 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)
Relative humidity			
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; incl. condensation / frost permitted (no commissioning under condensation conditions)
Vibrations			
• Vibration resistance during operation acc. to IEC 60068-2-6	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail

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• Operation, tested according to IEC 60068-2-6	Yes	Yes	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	Yes; IEC 68, Part 2-27; half-sine, 15 g, 11 ms	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
Resistance			
Coolants and lubricants			
— Resistant to commercially available coolants and lubricants	Yes	Yes	Yes
Use in stationary industrial systems			
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea			
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology			
— Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)	Yes; Class 3 (excluding trichlorethylene)
— Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark			
— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating			
• Coatings for printed circuit board assemblies acc. to EN 61086	Yes; Class 2 for high reliability	Yes; Class 2 for high reliability	Yes; Class 2 for high reliability
• Protection against fouling acc. to EN 60664-3	Yes; Type 1 protection	Yes; Type 1 protection	Yes; Type 1 protection
• Military testing according to MIL-I-46058C, Amendment 7	Yes; Discoloration of coating possible during service life	Yes; Discoloration of coating possible during service life	Yes; Discoloration of coating possible during service life
• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A	Yes; Conformal coating, Class A	Yes; Conformal coating, Class A	Yes; Conformal coating, Class A
configuration / header			
configuration / programming / header			
Programming language			
— LAD	Yes; incl. failsafe	Yes; incl. failsafe	Yes; incl. failsafe
— FBD	Yes; incl. failsafe	Yes; incl. failsafe	Yes; incl. failsafe
— SCL	Yes	Yes	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
programming / cycle time monitoring / header			
• adjustable	Yes	Yes	Yes
Dimensions			

Article number	6AG1214-1AF40-5XB0 SIPLUS S7-1200 CPU 1214FC DC/DC/DC	6AG1214-1HF40-5XB0 SIPLUS S7-1200 CPU 1214FC DC/DC/RLY	6AG1215-1AF40-5XB0 SIPLUS S7-1200 CPU 1215FC DC/DC/DC
Width	110 mm	110 mm	130 mm
Height	100 mm	100 mm	100 mm
Depth	75 mm	75 mm	75 mm
Weights			
Weight, approx.	415 g	435 g	585 g

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