## SIEMENS

## Data sheet

## 6AG1214-1HF40-5XB0



SIPLUS S7-1200 CPU 1214FC DC/DC/relay based on 6ES7214-1HF40-0XB0 with conformal coating, -25...+55 °C, compact CPU, DC/DC/relay, onboard I/O: 14 DI 24 V DC; 10 DQ relay 2 A; 2 AI 0-10 V DC, power supply: DC 20.4-28.8 V DC, program/data memory 125 KB

General information	
Product type designation	CPU 1214FC DC/DC/Relay
based on	6ES7214-1HF40-0XB0
Engineering with	
STEP 7 TIA Portal configurable/integrated from version	see entry ID: 109746275
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
Load voltage L+	
Rated value (DC)	24 V
<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
<ul> <li>permissible range, upper limit (DC)</li> </ul>	28.8 V
Input current	
Current consumption, max.	1 500 mA; max. with all expansion accessories
Inrush current, max.	12 A; at 28.8 V
Encoder supply	
24 V encoder supply	
• 24 V	L+ minus 4 V DC min.
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
<ul> <li>integrated</li> </ul>	125 kbyte
Load memory	
integrated	4 Mbyte
<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	with SIMATIC memory card
Backup	
• present	Yes; maintenance-free
without battery	Yes
CPU processing times	
for bit operations, typ.	0.08 μs; / Operation
for word operations, typ.	1.7 µs; / Operation
for floating point arithmetic, typ.	2.3 µs; / instruction
CPU-blocks	
Number of blocks (total)	1 024; OBs, FBs, FCs, DBs
OB	
Number, max.	Limited only by RAM for code
Data areas and their retentivity	

6AG12141HF405XB0 Page 1/5

Retentive data area (incl. timers, counters, flags), max.	10 kbyte
Address area	
I/O address area	
Inputs	1 024 byte
Outputs	1 024 byte
Process image	1024 byte
Inputs, adjustable	1 024 byte
• Outputs, adjustable	1 024 byte
Hardware configuration	
Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
Time of day	
Clock	
<ul> <li>Hardware clock (real-time)</li> </ul>	Yes
Backup time	480 h; typical; 12 days min. at 40 °C
• Deviation per day, max.	±60 s per month
Digital inputs	
Number of digital inputs	14
<ul> <li>of which inputs usable for technological functions</li> </ul>	6; HSC (High Speed Counting)
Source/sink input	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
Input voltage	
Rated value (DC)	24 V; DC at 4 mA nominal
• for signal "0"	5 V DC at 1 mA
● for signal "1"	15 V DC at 2.5 mA
Input current	
● for signal "1", typ.	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
— at "0" to "1", min.	0.1 µs
— at "0" to "1", max.	20 ms
for interrupt inputs	Var
— parameterizable     for technological functions	Yes
— parameterizable	Single phase : 3 at 100 kHz & 3 at 30 kHz, differential: 3 at 80 kHz & 3 at 30
	kHz
Cable length	
• shielded, max.	500 m; 50 m for technological functions
• unshielded, max.	300 m; for technological functions: No
Digital outputs	
Number of digital outputs	10; Relays
Short-circuit protection	No; to be provided externally
Switching capacity of the outputs	
<ul> <li>with resistive load, max.</li> </ul>	2 A
<ul> <li>on lamp load, max.</li> </ul>	30 W; 30 W with DC, 200 W with AC
Output delay with resistive load	
• "0" to "1", max.	10 ms; max.
• "1" to "0", max.	10 ms; max.
Relay outputs	
Number of relay outputs	10
Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100 000
Cable length	
• shielded, max.	500 m
• unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
Input ranges	
Voltage	Yes; 0 to 10V

Input ranges (rated values) voltages	
Input ranges (rated values), voltages • 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	400 muchielded twisted asia
• shielded, max.	100 m; shielded, twisted pair
Analog outputs	•
Number of analog outputs	0
Cable length	
<ul> <li>shielded, max.</li> </ul>	100 m; shielded, twisted pair
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
<ul> <li>Resolution with overrange (bit including sign), max.</li> </ul>	10 bit
Integration time, parameterizable	Yes
Conversion time (per channel)	625 µs
Encoder	
Connectable encoders	
2-wire sensor	Yes
1. Interface	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Interface types	
RJ 45 (Ethernet)	Yes
Protocols	
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
PROFINET IO Controller	
Services	
<ul> <li>Number of IO devices with prioritized startup, max.</li> </ul>	16
Protocols	
Supports protocol for PROFINET IO	Yes
Supports protocol for PROFINET IO PROFIsafe	Yes No
PROFIsafe	No
PROFIsafe PROFIBUS	No Yes; CM 1243-5 required
PROFIsafe PROFIBUS AS-Interface	No Yes; CM 1243-5 required
PROFIsafe PROFIBUS AS-Interface Protocols (Ethernet)	No Yes; CM 1243-5 required Yes
PROFIsafe PROFIBUS AS-Interface Protocols (Ethernet) • TCP/IP	No Yes; CM 1243-5 required Yes
PROFIsafe PROFIBUS AS-Interface Protocols (Ethernet) • TCP/IP Open IE communication	No Yes; CM 1243-5 required Yes Yes
PROFIsafe PROFIBUS AS-Interface Protocols (Ethernet) • TCP/IP Open IE communication • TCP/IP	No Yes; CM 1243-5 required Yes Yes
PROFIsafe PROFIBUS AS-Interface Protocols (Ethernet) • TCP/IP Open IE communication • TCP/IP • ISO-on-TCP (RFC1006)	No Yes; CM 1243-5 required Yes Yes Yes
PROFIsafe PROFIBUS AS-Interface Protocols (Ethernet) • TCP/IP Open IE communication • TCP/IP • ISO-on-TCP (RFC1006) • UDP	No Yes; CM 1243-5 required Yes Yes Yes
PROFIsafe PROFIBUS AS-Interface Protocols (Ethernet) • TCP/IP Open IE communication • TCP/IP • ISO-on-TCP (RFC1006) • UDP Web server	No Yes; CM 1243-5 required Yes Yes Yes Yes
PROFIsafe PROFIBUS AS-Interface Protocols (Ethernet) • TCP/IP Open IE communication • TCP/IP • ISO-on-TCP (RFC1006) • UDP Web server • supported	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes
PROFIsafe PROFIBUS AS-Interface Protocols (Ethernet) • TCP/IP Open IE communication • TCP/IP • ISO-on-TCP (RFC1006) • UDP Web server • supported • User-defined websites	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes
PROFIsafe PROFIBUS AS-Interface Protocols (Ethernet) • TCP/IP Open IE communication • TCP/IP • ISO-on-TCP (RFC1006) • UDP Web server • supported • User-defined websites Further protocols	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes Yes
PROFIsafe PROFIBUS AS-Interface Protocols (Ethernet)  TCP/IP Open IE communication  TCP/IP ISO-on-TCP (RFC1006)  UDP Web server  supported User-defined websites Further protocols MODBUS	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes Yes
PROFIsafe PROFIBUS AS-Interface Protocols (Ethernet)  TCP/IP Open IE communication  TCP/IP ISO-on-TCP (RFC1006) UDP Web server supported USer-defined websites Further protocols MODBUS communication functions / header	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes Yes
PROFIsafe         PROFIBUS         AS-Interface         Protocols (Ethernet)         • TCP/IP         Open IE communication         • TCP/IP         • ISO-on-TCP (RFC1006)         • UDP         Web server         • supported         • User-defined websites         Further protocols         • MODBUS         communication functions / header         S7 communication	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes Yes Yes
PROFIsafe         PROFIBUS         AS-Interface         Protocols (Ethernet)         • TCP/IP         Open IE communication         • TCP/IP         • ISO-on-TCP (RFC1006)         • UDP         Web server         • supported         • User-defined websites         Further protocols         • MODBUS         communication         • supported         • supported	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes Yes Yes Yes
PROFIsafe         PROFIBUS         AS-Interface         Protocols (Ethernet)         • TCP/IP         Open IE communication         • TCP/IP         • ISO-on-TCP (RFC1006)         • UDP         Web server         • supported         • User-defined websites         Further protocols         • MODBUS         communication         • supported         • supported         • MODBUS	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes Yes Yes Yes
PROFIsafe         PROFIBUS         AS-Interface         Protocols (Ethernet)         • TCP/IP         Open IE communication         • TCP/IP         • ISO-on-TCP (RFC1006)         • UDP         Web server         • supported         • User-defined websites         Further protocols         • MODBUS         communication         • supported         • supported         • MODBUS         communication         • supported         • as server         • as server         • as client	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes Yes Yes Yes
PROFIsafe         PROFIBUS         AS-Interface         Protocols (Ethernet)         • TCP/IP         Open IE communication         • TCP/IP         • ISO-on-TCP (RFC1006)         • UDP         Web server         • supported         • User-defined websites         Further protocols         • MODBUS         communication         • supported         • as server         • as client         Test commissioning functions	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes Yes Yes Yes
PROFIsafe         PROFIBUS         AS-Interface         Protocols (Ethernet)         • TCP/IP         Open IE communication         • TCP/IP         • ISO-on-TCP (RFC1006)         • UDP         Web server         • supported         • User-defined websites         Further protocols         • MODBUS         communication         • supported         • supported         • MODBUS         communication         • supported         • as server         • as server         • as client         Test commissioning functions	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes Yes Yes
PROFIsafe         PROFIBUS         AS-Interface         Protocols (Ethernet)         • TCP/IP         Open IE communication         • TCP/IP         • ISO-on-TCP (RFC1006)         • UDP         Web server         • supported         • User-defined websites         Further protocols         • MODBUS         communication         • supported         • supported         • supported         • MODBUS         communication         • supported         • supported         • supported         • supported         • supported         • as server         • as server         • as client         Test commissioning functions         Status/control         • Status/control variable	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes Yes Yes Yes Yes
PROFIsafe         PROFIBUS         AS-Interface         Protocols (Ethernet)         • TCP/IP         Open IE communication         • TCP/IP         • ISO-on-TCP (RFC1006)         • UDP         Web server         • supported         • User-defined websites         Further protocols         • MODBUS         communication         • supported         • as server         • as client         Test commissioning functions         Status/control         • Status/control variable         • Variables	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes Yes Yes Yes
PROFIsafe         PROFIBUS         AS-Interface         Protocols (Ethernet)         • TCP/IP         Open IE communication         • TCP/IP         • ISO-on-TCP (RFC1006)         • UDP         Web server         • supported         • User-defined websites         Further protocols         • MODBUS         communication         • supported         • as server         • as client         Test commissioning functions         Status/control         • Status/control variable         • Variables         Forcing	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes
PROFIsafe         PROFIBUS         AS-Interface         Protocols (Ethernet)         • TCP/IP         Open IE communication         • TCP/IP         Open IE communication         • TCP/IP         Open Solution         • UDP         Web server         • supported         • User-defined websites         Further protocols         • MODBUS         communication functions / header         S7 communication         • supported         • as server         • as client         Test commissioning functions         Status/control         • Status/control variable         • Variables         Forcing         • Forcing	No Yes; CM 1243-5 required Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes

Aurible of configurable Traces     2: Up to 512 KB of data per trace are possible     Integrated Functions     Counter     Number of counters     6     Counter     Number of counters     6     Counter     Potential expansion     Yes     controlled positioning     Yes     Counter     Yes     Y	Traces	
Integrated Functions         6           Counting frequency, max.         100 kHz           Frequency, maxasument         Yes           Control of prequency, maxasument         Yes           Control of prequency, maxasument         Yes           Control of prequency, maxasument         Yes           Control of preductions         Yes           Number of pulse outputs         4           Number of pulse outputs         4           Potential separation         100 kHz           Potential separation         100 kHz           Potential separation         100 kHz           Potential separation         500 V DC between 24 V DC and 5 V DC           EdG         500 V DC between 24 V DC and 5 V DC           Interference immunity against discharge of static electricity         6 kV           Interference immunity on supply lines acc. to IEC 6 1000-         Yes           Interference immunity on supply lines acc. to IEC 6 1000-         Yes           Interference immunity against voltage static discharge         6 kV           Interference immunity against voltage supply         Yes           Interference immunity against voltage supply         Yes           Interference immunity against voltage supply         Yes           Interference immunity against voltage supply lines acc.		2; Up to 512 KB of data per trace are possible
Counter     6       • Number of counters     6       • Counting frequency, max.     100 kHz       Frequency measurement     Yes       Outcottollar     Yes       Pice controller     Yes       Number of alarm inputs     4       Number of alarm inputs     4       Potential separation     Prevential separation digital inputs       • Potential separation     Functional isolaton (Optocoupler)       Parmissible potential difference     500 V DC between 24 V DC and 5 V DC       Extreme immunity against discharge of static electricity     Interference immunity against discharge       • Interference immunity against discharge     6 KV       Interference immunity on supply lines act. to IEC 6 1000-4.4     Yes       - Instructione immunity on supply lines act. to IEC 6 1000-4.4     Yes       - Interference immunity on supply lines act. to IEC 6 1000-4.5     Yes       - Interference immunity against voltage surge     Yes       - Interference immunity against bigh frequency relation		
Number of counters <ul> <li>Number of counters</li> <li>Ocontrig frequency, max.</li> <li>100 kHz</li> <li>Frequency measurement</li> <li>Yes</li> <li>controller positioning</li> <li>Yes</li> </ul> <li>Protential separation of pluse outputs</li> <li>A</li> <li>Number of pluse outputs</li> <li>Potential separation digital inputs</li> <li>Functional isolation (Optiocoupler)</li> <li>Performatial separation digital inputs</li> <li>Functional isolation (Optiocoupler)</li> <li>Permissible potential affraerace</li> <li>Debate of affraerace inmunity against discharge of static electricity</li> <li>Interference immunity against discharge of static electricity</li> <li>Interference immunity against discharge</li> <li>Kiv</li> <li>Test voltage at an other discharge</li> <li>Kiv</li> <li>Test voltage at onther discharge</li> <li>Kiv</li> <li>Test voltage at an other discharge</li> <li>Kiv</li> <li>Test voltage at onther discharge</li> <li>Kiv</li> <li>Test voltage at an other discharge</li> <li>Kiv</li> <li>T</li>		
- Counting frequency, max.         100 kHz                Frequency measurement.         Yes                - Protential expension         Yes                PiD controller         Yes                Number of advate outputs         4                Number of advate outputs         4                Potential expension digital inputs          Functional isolation (Optocoupler)                 Pretrainsible potential difference          Interference immunity against discharge of static electricity                 Interference immunity against discharge of static electricity          Interference immunity on supply lines acc. to IEC 6 ft000-                 Interference immunity on supply lines acc. to IEC 6 ft000-          Yes                 Interference immunity against high-frequency rediston          Yes                 Interference immunity outputs in a sci. to IEC 6 ft000-          Yes                 Interference immunity outputs in a sci. to I		6
Frequency measurement     Yes       controller positioning     Yes       PD controller     Yes       Number of alarm inputs     4       Number of alarm inputs     4       Potential separation digital inputs     4       Potential separation digital inputs     Functional isolation (Optocoupler)       Permissible potential difference     500 V DC between 24 V DC and 5 V DC       Ext     Ext       Interference immunity against discharge of static electricity     8 kV       - Test voltage at in discharge     8 kV       - Test voltage at contact discharge     8 kV       - Test voltage at in discharge     8 kV       - Test voltage at in discharge     8 kV       - Test voltage at in discharge of static electricity     Yes       Interference immunity on supply lines acc. to IEC 6 1000-4     4       - Interference immunity against discharge of static electricity     Yes       Interference immunity against high-frequency radiation acc. to IEC 6 1000-4     Yes       - Envision of atacio interference acc. to IEC 6 1000-4     Yes       - Interference im		
controlled positioning         Yes           PIC controller         Yes           Number of pulse outputs         4           Number of pulse outputs         4           Potential separation digital inputs         Functional isolation (Optocoupler)           Permissible potputs         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         Functional static electricity           Interference immunity against discharge         8 kV           -         Test voltage at air discharge         9 kV           -         Test voltage at air discharge         9 kV           -         Test voltage at air discharge         9 kV           -         Test voltage at air discharge	· · · ·	
PID controller     Yes       Number of atam inputs     4       Number of pulse outputs     4       Potential separation digital inputs     Functional isolation (Optocoupler)       Peternial separation digital inputs     Functional isolation (Optocoupler)       Permissible potential difference     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     4 KV       • Test voltage at an indischarge     8 KV       • Test voltage at an indischarge     8 KV       • Test voltage at an indischarge     8 KV       • Interference immunity on signal cables acc. to IEC 6 1000- 44     Yes       • Interference immunity on signal cables acc. to IEC 6 1000- 44     Yes       • Interference immunity on supply lines acc. to IEC 6 1000- 45     Yes       • Interference immunity on supply lines acc. to IEC 6 1000- 45     Yes       • Interference immunity against conducted variable disturbance induced by high-frequency fields     Yes       • Interference immunity against conducted variable disturbance induced by high-frequency fields     Yes       • Interference immunity against high-frequency radiation     Yes       • Interference immunity on supply lines acc. to IEC 61000- 45     Yes       • Interference immunity on supply lines acc. to IEC 61000- 45     Yes       • Interference im		
Number of piase outputs         4           Number of piase outputs         4           Potential separation digital inputs         Eunctional isolation (Optocoupler)           Petential separation digital inputs         Eunctional isolation (Optocoupler)           Petential difference         Evential difference           Detween different circuits         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         Yes           • Interference immunity against discharge of static electricity         Yes           • Interference immunity against discharge of static electricity         Yes           • Interference immunity on supply lines acc. to IEC 61000-44         Yes           • Interference immunity on supply lines acc. to IEC 61000-44         Yes           • Interference immunity against unlable sturbance induced by high-frequency fields         Yes           • Interference immunity against unlable disturbance induced by high-frequency fields         Yes           • Interference immunity against unducted variable disturbance induced by high-frequency fields         Yes           • Interference immunity against unducted variable disturbance induced by high-frequency fields         Yes           • Interference immunity against unducted variable disturbance induced by high-frequency fields		
Number of pulse outputs         4           Potential separation digital inputs         Functional isolation (Optocoupler)           Parential separation digital inputs         Functional isolation (Optocoupler)           Parential separation digital inputs         500 V DC between 24 V DC and 5 V DC           EMC         Status           Interference immunity against discharge of static electricity         •           • Interference immunity against discharge         8 kV           - Test voltage at contact discharge         8 kV           - Test voltage at contact discharge         8 kV           • Interference immunity on supply lines acc. to IEC 6 1000-4         Yes           4.4         •         Netterference immunity on supply lines acc. to IEC 6 1000-4           4.4         •         Interference immunity on supply lines acc. to IEC 6 1000-4           4.5         •         Interference immunity on supply lines acc. to IEC 6 1000-4           4.6         •         Interference immunity against voltage surge         •           •         •         •         Yes           4.5         •         •         Yes           •         •         •         Yes           •         •         •         Yes           •         •         •		
Potential separation digital inputs         Functional isolation (Optocoupler)           Potential separation digital inputs         Functional isolation (Optocoupler)           Parmissible potential difference         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         Yes                • Interference immunity against discharge of static electricity         8 kV                • Test voltage at contact discharge         8 kV                • Test voltage at contact discharge         6 kV           Interference immunity on supply lines acc. to IEC 61000-44         Yes                • Interference immunity on supply lines acc. to IEC 61000-44         Yes                • Interference immunity against voltage surge         Yes                • Interference immunity against voltage surge         Yes                • Interference immunity against high-frequency radiaton acc. to EC 61000-4-8         Yes           Emission of radio interference acc. to EN 55 011                  • Limit class A, for use in industrial areas         Yes; Croup 1                • Limit class A provel                  • Limit class A prototaclina		
Potential separation digital inputs       Functional isolation (Optocoupler)         Permissible potential altigrance       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.       Yes         • Interference immunity against discharge       8 kV         - Test voltage at air discharge       8 kV         - Test voltage at air discharge       6 kV         Interference immunity to asignal cables acc. to IEC 61000- 44       Yes         • Interference immunity on signal cables acc. to IEC 61000- 45       Yes         • Interference immunity against voltage surge       Interference immunity against voltage surge         • Interference immunity against voltage surge       Yes         • Interference	· · ·	4
Potential separation digital inputs     Parnisable potential difference  Pernesisible potential difference  Pernesisible potential difference  EMC  Interference immunity against discharge of static electricity  Interference immunity against discharge of static electricity acc. to IEC 61000-42  Interference immunity to cabit-borne interference Interference immunity on supply lines acc. to IEC 61000- 44  Interference immunity against utolage surge Interference immunity againstriph-frequency relation		
Permissible potential difference           between different circuits         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 acts. Ib CE 61000-4.2          Test voltage at oridact discharge         8 KV          Test voltage at contact discharge         9 KV          Test voltage at contact discharge         9 KV          Test voltage at contact discharge         9 KV          Test voltage at contact discharge         Yes          Test voltage at contact discharge         Yes          Test voltage at contact by 50 ft1		
between different circuits         500 V DC between 24 V DC and 5 V DC           EMC           Interference immunity against discharge of static electricity         Yes           electricity acc. to IEC 61000-4.2         8 KV           — Test voltage at air discharge         8 KV           — Interference immunity to cable-borne interference         Yes           4.4         Interference immunity on supply lines acc. to IEC 61000- 4.5         Yes           Interference immunity against toducted variable disturbance induced by high-frequency fields         Yes           • Interference arc. to EN 55 011         Yes           • 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           Piege and class of protection         IP20           Standards, approvals, cortificatos		Functional isolation (Optocoupler)
EMC         Interference immunity against discharge of static electricity <ul> <li>Interference immunity against discharge of static electricity</li> <li>Test voltage at an discharge</li> <li>KV</li> <li>Test voltage at an discharge</li> <li>KV</li> </ul> <ul> <li>Test voltage at an discharge</li> <li>KV</li> </ul> <ul> <li>Test voltage at an discharge</li> <li>KV</li> </ul> <ul> <li>Interference immunity on supply lines acc. to IEC 61000-44</li> <li>Interference immunity against voltage surge</li> <li>Interference immunity against voltage surge</li> <li>Interference immunity against onducted variable disturbance induced by high-frequency fields</li> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-45</li> </ul> Yes <ul> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-45</li> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-45</li> </ul> Yes <ul> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-45</li> <li>Interference acc. to IEC 5011</li> <li>Yes; When appropriate measures are used to ensure compliance with the limits for Class a for ouse in residential areas</li> <li>Yes; When appropriate measures are used to ensure compliance with the limits for Class a gorordiate according to ISO 13849-1</li> <li>Yes according to ISO 13849-1</li></ul>	Permissible potential difference	
Interference immunity against discharge of static     electricity acc. to IEC 61000-4-2         — Test voltage at contact discharge         6 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         • Interference immunity against voltage surge         • Interference immunity against ligh-frequency relation         • Lotage control to the surge of the s		500 V DC between 24 V DC and 5 V DC
Interference immunity against discharge of static     electricity acc. to IEC 61000-4-2         — Test voltage at contact discharge         6 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         • Interference immunity against voltage surge         • Interference immunity against ligh-frequency relation         • Lotage control to the surge of the s		
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 against voltage surge     Yes       • Init class A, for use in industrial areas     Yes; Group 1       P degree of protection	Interference immunity against discharge of static	Yes
Test voltage at contact discharge     6 kV       Interference immunity to cable-borne interference     Yes       • Interference immunity on supply lines acc. to IEC 61000- 44     Yes       • Interference immunity on signal cables acc. to IEC 61000- 44     Yes       • Interference immunity against voltage surge     Yes       • Interference immunity against colducted variable disturbance induced by high-frequency fields     Yes       • Interference immunity against togh-frequency radiation acc to IEC 61000-4-6     Yes       • Interference immunity against high-frequency radiation acc to IEC 61000-4-6     Yes       • Interference immunity against high-frequency radiation acc to IEC 61000-4-6     Yes       • Interference immunity against high-frequency radiation acc to IEC 61000-4-6     Yes       • Limit class A, for use in industrial areas to EC 61000-4-6     Yes       • Limit class A, for use in residential areas tor Class B according to EN 55011     Interference immunity against high-frequency fields       • Limit class A, for use in residential areas tor Class B according to EN 55011     Interference immunity against high-frequency fields       • Limit class A, for use in residential areas tor Class B according to EN 55011     Interference immunity against high-frequency fields       • Limit class A, for use in residential areas tor Class B according to EN 55011     Interference immunity against contince		
Interference immunity to cable-borne interference         • Interference immunity on supply lines acc. to IEC 61000- 4.4         Interference immunity on signal cables acc. to IEC 61000- 4.4         Interference immunity against voltage surge         • Interference immunity against injch-frequency radiation acc. to IEC 81000-4-6         Emission of radio interference acc. to EN 55 011         • Limit class A, for use in industrial areas       Yes; Group 1         • Limit class B, for use in industrial areas       Yes; Group 1         • Limit class of protection       IP20         Standards, approvals, certificates       Yes         Marine approval       Yes         Highest safety class achievable in safety mode       Performance level according to ISO 13849-1         • Performance level according to ISO 13849-1       PLe         • SiL acc. to IEC 61508       SiL 3         Ambient conditions       -25 °C; = Tmin         • radia       -25 °C		
Interference immunity on supply lines acc. to IEC 61000- 4-4     Interference immunity on signal cables acc. to IEC 61000- 4-4     Interference immunity on supply lines acc. to IEC 61000- 4-5     Interference immunity on supply lines acc. to IEC 61000- 4-5     Interference immunity against conducted variable disturbance induced by high-frequency fields     Interference immunity against inducted variable disturbance induced by high-frequency fields     Interference immunity against inducted variable disturbance induced by high-frequency fields     Interference immunity against high-frequency radiation acc. to IEC 61000-4-6     Emission of radio interference acc. to EN 55 011     Interference immunity against high-frequency radiation acc. to IEC 61000-4-6     Emission of radio interference acc. to EN 55 011     Used tass A, for use in residential areas     Yes; Group 1     Unit class A, 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     IP2 0     Standards, approvals, certificates     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 conditions     Free fall     • Fall height, max.         6.5 °C; = Tmax         horizontal installation, min.         625 °C     } °C     } °C     } °C		6 KV
4-4       • Interference immunity on signal cables acc. to IEC 61000- 4-4         Interference immunity against voltage surge       • Interference immunity against voltage surge         • Interference immunity against conducted variable disturbance induced by high-frequency fields       Yes         • Interference immunity against conducted variable disturbance induced by high-frequency fields       Yes         • Interference immunity against conducted variable disturbance induced by high-frequency fields       Yes         • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6       Yes         Emission of radio interference acc. to EN 55 011       Yes; Group 1         • Limit class A, for use in industrial areas       Yes; Group 1         • Limit class of protection       IP20         Standards, approval       Yes         Highest stacks coliexable in safety mode       IP20         • Performance level according to ISO 13849-1       PLe         • SIL acc. to IEC 61508       SIL 3         Ambient conditions       SIL 3         Free fall       • Fall height, max.       0.3 m; five times, in product package         Ambient temperature during operation       -25 °C; = Tmin         • min.       -25 °C       -25 °C         • horizontal installation, min.       -25 °C	· · · · · · · · · · · · · · · · · · ·	
4-4       Interference immunity against voltage surge         Interference immunity on supply lines acc. to IEC 61000- 4-5       Yes         Interference immunity against conducted variable disturbance induced by high-frequency fields       Interference immunity against conducted variable disturbance induced by high-frequency fields         Interference immunity against conducted variable disturbance induced by high-frequency fields       Yes         Interference immunity against onducted variable disturbance induced by high-frequency fields       Yes         Interference immunity against high-frequency radiation acc. to IEC 61000-4-6       Yes         Emission of radio interference acc. to EN 55 011       Yes         Interference immunity against high-frequency radiation acc. to IEC 61000-4-6       Yes; Group 1         Limit class B, for use in industrial 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       IP20         Standards, approval       Yes         Highest safety class achievable in safety mode       Performance level according to ISO 13849-1         PLe       SIL 3         Ambient conditions       SIL 3         Ambient conditions       -25 °C; = Tmin         • Fail height, max.       0.3 m; five times, in product package         Ambient temperature during operation       -25 °C; = Tmin <td></td> <td>Yes</td>		Yes
• Interference immunity on supply lines acc. to IEC 61000- 4-5       Yes         Interference immunity against conducted variable disturbance induced by high-frequency fields       Yes         • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6       Yes         Emission of radio interference acc. to EN 55 011       Yes         • 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       IP20         Standards, approvals, certificates       IP20         Standards, approval, certificates       Yes         Marine approval       Yes         • Performance level according to ISO 13849-1       PLe         • SIL acc. to IEC 61508       SIL 3         Ambient conditions       Free fall         • Fael height, max.       0.3 m; five times, in product package         Ambient temperature during operation       -25 °C; = Tmin         • max.       -25 °C         • horizontal installation, min.       -25 °C         • vertical installation, min.       -25 °C		Yes
4-5       Interference immunity against conducted variable disturbance induced by high-frequency fields         Interference immunity against high-frequency radiation acc. to IEC 6 f1000-4-6       Yes         Emission of radio interference acc. to EN 55 011       Interference immunity against high-frequency radiation acc. to IEC 6 f1000-4-6         Emission of radio interference acc. to EN 55 011       Interference immunity against high-frequency radiation acc. to IEC 6 f1000-4-6         Emission of radio interference acc. to EN 55 011       Ves; Group 1         • 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       IP20         Standards, approvals, certificates       IP20         Marine approval       Yes         Highest safety class achievable in safety mode       PLe         • Performance level according to ISO 13849-1       PLe         • SIL acc. to IEC 61508       SIL 3         Ambient conditions       SI acc. to IEC 61508         Free fail       • O.3 m; five times, in product package         Ambient temperature during operation       -25 °C; = Tmin         • max.       -25 °C; = Tmin         • horizontal installation, min.       -25 °C	Interference immunity against voltage surge	
• 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         • Limit class B, for use in residential areas       Yes; Group 1         • Limit class G protection       Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011 <b>Degree and class of protection</b> IP20         Standards, approvals, certificates       Marine approval         Marine approval       Yes         Highest safety class achievable in safety mode       • Performance level according to ISO 13849-1         • Plef of 1508       SiL 3         Ambient conditions       SiL 3         Free fail       • Cas m, five times, in product package         Ambient temperature during operation       -25 °C; = Tmin         • min.       -25 °C; = Tmin         • norizontal installation, min.       -25 °C         • horizontal installation, min.       -25 °C		Yes
acc. to IEC 61000-4-6       Emission of radio interference acc. to EN 55 011 <ul> <li>Limit class A, for use in industrial areas</li> <li>Yes; Group 1</li> <li>Limit class B, for use in residential areas</li> </ul> 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 20           Standards, approvals, certificates         Yes           Marine approval         Yes <ul> <li>Performance level according to ISO 13849-1</li> <li>PLe</li> <li>SIL acc. to IEC 61508</li> <li>SIL a</li> </ul> SIL 3           Ambient conditions         Free fall <ul> <li>Free fall</li> <li>Free fall</li> <li>Free fall</li> <li>Free fall</li> <li>Ambient temperature during operation</li> <li>-25 °C; = Tmin</li> <li>max.</li> <li>horizontal installation, min.</li> <li>-25 °C</li> <li>vertical installation, min.</li> <li>-25 °C</li> </ul>	Interference immunity against conducted variable disturbance indu	ced by high-frequency fields
• 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 <b>Degree and class of protection</b> IP degree of protection         IP degree of protection       IP20 <b>Standards, approvals, certificates</b> Yes         Marine approval       Yes         Highest safety class achievable in safety mode       PLe         • Performance level according to ISO 13849-1       PLe         • SiL acc. to IEC 61508       SiL 3         Ambient conditions       Free fall         • Free fall       0.3 m; five times, in product package         Ambient temperature during operation       -25 °C; = Tmin         • min.       -25 °C         • horizontal installation, min.       -25 °C         • vertical installation, min.       -25 °C		Yes
• 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 20         IP degree of protection       IP20         Standards, approvals, certificates       Yes         Marine approval       Yes         Highest safety class achievable in safety mode       Performance level according to ISO 13849-1         • Performance level according to ISO 13849-1       PLe         • SIL acc. to IEC 61508       SIL 3         Ambient conditions       Sil 3         Free fall       0.3 m; five times, in product package         • Fall height, max.       0.3 m; five times, in product package         • min.       -25 °C; = Tmin         • max.       -25 °C; = Tmax         • horizontal installation, min.       -25 °C         • horizontal installation, min.       -25 °C         • vertical installation, min.       -25 °C	Emission of radio interference acc. to EN 55 011	
• 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 20         IP degree of protection       IP20         Standards, approvals, certificates       Yes         Marine approval       Yes         Highest safety class achievable in safety mode       Performance level according to ISO 13849-1         • Performance level according to ISO 13849-1       PLe         • SIL acc. to IEC 61508       SIL 3         Ambient conditions       Sil 3         Free fall       0.3 m; five times, in product package         • Fall height, max.       0.3 m; five times, in product package         • min.       -25 °C; = Tmin         • max.       55 °C; = Tmax         • horizontal installation, min.       -25 °C         • horizontal installation, min.       -25 °C         • vertical installation, min.       -25 °C	<ul> <li>Limit class A, for use in industrial areas</li> </ul>	Yes; Group 1
IP degree of protection       IP20         Standards, approvals, certificates       IP20         Marine approval       Yes         Highest safety class achievable in safety mode       Yes         • Performance level according to ISO 13849-1       PLe         • SIL acc. to IEC 61508       SIL 3         Ambient conditions       Ves         Free fall       0.3 m; five times, in product package         • Fall height, max.       0.3 m; five times, in product package         • min.       -25 °C; = Tmin         • max.       -25 °C         • horizontal installation, min.       -25 °C         • vertical installation, min.       -25 °C	• Limit class B, for use in residential areas	Yes; When appropriate measures are used to ensure compliance with the limits
Standards, approvals, certificates         Marine approval       Yes         Highest safety class achievable in safety mode       Ple         • Performance level according to ISO 13849-1       PLe         • SIL acc. to IEC 61508       SIL 3         Ambient conditions       Sill 3         Free fall       0.3 m; five times, in product package         • Fall height, max.       0.3 m; five times, in product package         • min.       -25 °C; = Tmin         • max.       55 °C; = Tmax         • horizontal installation, min.       -25 °C         • vertical installation, min.       -25 °C	Degree and class of protection	
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       SIL         Free fall       •         • Fall height, max.       0.3 m; five times, in product package         Ambient temperature during operation       -25 °C; = Tmin         • min.       -25 °C; = Tmax         • horizontal installation, min.       -25 °C         • horizontal installation, min.       -25 °C	IP degree of protection	IP20
Highest safety class achievable in safety mode         • Performance level according to ISO 13849-1         • SIL acc. to IEC 61508         SIL acc. to IEC 61508         Ambient conditions         Free fall         • Fall height, max.         0.3 m; five times, in product package         Ambient temperature during operation         • min.         • max.         • horizontal installation, min.         • horizontal installation, max.         • horizontal installation, min.         • vertical installation, min.	Standards, approvals, certificates	
• Performance level according to ISO 13849-1PLe• SIL acc. to IEC 61508SIL 3Ambient conditionsFree fall• Fall height, max.0.3 m; five times, in product packageAmbient temperature during operation• min25 °C; = Tmin• max.55 °C; = Tmax• horizontal installation, min25 °C• horizontal installation, max.55 °C• vertical installation, min25 °C	Marine approval	Yes
• SIL acc. to IEC 61508SIL 3Ambient conditionsFree fall• Fall height, max.0.3 m; five times, in product packageAmbient temperature during operation• min25 °C; = Tmin• max.55 °C; = Tmax• horizontal installation, min25 °C• horizontal installation, max.55 °C• vertical installation, min25 °C• vertical installation, min25 °C	Highest safety class achievable in safety mode	
• SIL acc. to IEC 61508SIL 3Ambient conditionsFree fall• Fall height, max.0.3 m; five times, in product packageAmbient temperature during operation• min25 °C; = Tmin• max.55 °C; = Tmax• horizontal installation, min25 °C• horizontal installation, max.55 °C• vertical installation, min25 °C• vertical installation, min25 °C		PLe
Ambient conditions         Free fall         • Fall height, max.       0.3 m; five times, in product package         Ambient temperature during operation         • min.       -25 °C; = Tmin         • max.       55 °C; = Tmax         • horizontal installation, min.       -25 °C         • horizontal installation, max.       55 °C         • vertical installation, min.       -25 °C	-	
Free fall         • Fall height, max.       0.3 m; five times, in product package         Ambient temperature during operation         • min.       -25 °C; = Tmin         • max.       55 °C; = Tmax         • horizontal installation, min.       -25 °C         • horizontal installation, max.       55 °C         • vertical installation, min.       -25 °C		
• Fall height, max.0.3 m; five times, in product packageAmbient temperature during operation-25 °C; = Tmin• min25 °C; = Tmax• max.55 °C; = Tmax• horizontal installation, min25 °C• horizontal installation, max.55 °C• vertical installation, min25 °C		
Ambient temperature during operation         • min.       -25 °C; = Tmin         • max.       55 °C; = Tmax         • horizontal installation, min.       -25 °C         • horizontal installation, max.       55 °C         • vertical installation, min.       -25 °C		0.3 m five times in product package
• min25 °C; = Tmin• max.55 °C; = Tmax• horizontal installation, min25 °C• horizontal installation, max.55 °C• vertical installation, min25 °C		
• max.55 °C; = Tmax• horizontal installation, min25 °C• horizontal installation, max.55 °C• vertical installation, min25 °C		-25 °C: = Tmin
<ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>-25 °C</li> <li>-25 °C</li> </ul>		
<ul> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>55 °C</li> <li>-25 °C</li> </ul>		
• vertical installation, min25 °C		
• vertical installation, max. 45 °C		
		45 °C
Ambient temperature during storage/transportation		
• min40 °C		
• max. 70 °C		70 °C
Air pressure acc. to IEC 60068-2-13	·	
Operation, min.     795 hPa	• Operation, min.	795 hPa
Operation, max.     1 080 hPa	Operation, max.	1 080 hPa
Altitude during operation relating to sea level	Altitude during operation relating to sea level	
Installation altitude above sea level, max.     2 000 m	<ul> <li>Installation altitude above sea level, max.</li> </ul>	2 000 m

5 hPa (-1 000 m +2 000 m)
5 HFa (-1 000 H +2 000 H)
st (no commissioning under condensation
s²) DIN rail
15 g, 11 ms
I dry rot spores (with the exception of fauna);
salt spray acc. to EN 60068-2-52 (severity
spores (excluding fauna); Class 6B3 on
salt spray acc. to EN 60068-2-52 (severity
hylene)
ing trichlorethylene; harmful gas EN 60721-3-3 class 3C4 permissible); level il)
remain in place over the unused interfaces
sible during service life