# **SIEMENS**

### Data sheet

## 6ES7214-1HF40-0XB0

SIMATIC S7-1200F, CPU 1214 FC, compact CPU, DC/DC/relay, onboard I/O: 14 DI 24 V DC; 10 DO relay 2 A; 2 AI 0-10 V DC, Power supply: DC 20.4-28.8V DC, Program/data memory 125 KB



General information	
Product type designation	CPU 1214FC DC/DC/Relay
Firmware version	V4.2
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V14 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
Load voltage L+	
<ul> <li>Rated value (DC)</li> </ul>	24 V
<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
• permissible range, upper limit (DC)	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 DC
l²t	0.5 A <sup>2</sup> ·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	125 kbyte
• expandable	No
Load memory	
• integrated	4 Mbyte
<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	with SIMATIC memory card
Backup	
• present	Yes
maintenance-free	Yes
• without battery	Yes
CPU processing times	
for bit operations, typ.	0.08 μs; / instruction
for word operations, typ.	1.7 μs; / instruction
for floating point arithmetic, typ.	2.3 µs; / instruction
CPU-blocks	
Number of blocks (total)	DBs, FCs, FBs, counters and timers. The maximum number of
	addressable blocks ranges from 1 to 65535. There is no
OB	restriction, the entire working memory can be used
	Limited only by RAM for code
• Number, max.	
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags),	10 kbyte
max.	
Flag	
• Number, max.	8 kbyte; Size of bit memory address area
Local data	
<ul> <li>per priority class, max.</li> </ul>	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Address area	
Process image	
<ul> <li>Inputs, adjustable</li> </ul>	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	
<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	
<ul> <li>Rated value (DC)</li> </ul>	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	
— parameterizable	Yes
for technological functions	
— parameterizable	Yes; Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz
Cable length	
• shielded, max.	500 m; 50 m for technological functions
• unshielded, max.	150 m; for technological functions: No
Digital outputs	
Number of digital outputs	10
Relay outputs	
<ul> <li>Number of relay outputs</li> </ul>	10
Analog inputs	
Number of analog inputs	2

Input ranges	
Voltage	Yes
Input ranges (rated values), voltages	
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	
• shielded, max.	100 m; twisted and shielded
Analog outputs Number of analog outputs	0
Output ranges, current	0
	Yes
• 0 to 20 mA	Tes
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
<ul> <li>Resolution with overrange (bit including sign),</li> </ul>	10 bit
max.	
<ul> <li>Integration time, parameterizable</li> </ul>	Yes
<ul> <li>Conversion time (per channel)</li> </ul>	625 µs
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
1. Interface	
	PROFINET
Interface type	PROFINET Ethernet
Interface type Physics	Ethernet
Interface type	
Interface type Physics Isolated	Ethernet Yes
Interface type Physics Isolated automatic detection of transmission rate	Ethernet Yes Yes
Interface type Physics Isolated automatic detection of transmission rate Autonegotiation	Ethernet Yes Yes Yes
Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing	Ethernet Yes Yes Yes
Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types	Ethernet Yes Yes Yes
Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • Number of ports	Ethernet Yes Yes Yes
Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • Number of ports • integrated switch	Ethernet Yes Yes Yes
Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • Number of ports • integrated switch Protocols	Ethernet Yes Yes Yes 1 No
Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • Number of ports • integrated switch Protocols • PROFINET IO Controller	Ethernet Yes Yes Yes 1 No
Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication	Ethernet Yes Yes Yes 1 No Yes Yes
Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication	Ethernet Yes Yes Yes 1 No Yes Yes Yes
Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server	Ethernet Yes Yes Yes 1 No Yes Yes Yes Yes
Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy	Ethernet Yes Yes Yes 1 No Yes Yes Yes Yes Yes
Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller	Ethernet Yes Yes Yes 1 No Yes Yes Yes Yes Yes Yes
Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max.	Ethernet Yes Yes Yes 1 No Yes Yes Yes Yes Yes
Interface type Physics Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller	Ethernet Yes Yes Yes 1 No Yes Yes Yes Yes Yes Yes

— S7 routing	Yes
— Isochronous mode	No
— IRT	No
— MRP	No
— MRPD	No
— PROFlenergy	No
— Prioritized startup	Yes
<ul> <li>Number of IO devices with prioritized</li> </ul>	16
startup, 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

#### **PROFINET IO Device**

Services	
— PG/OP communication	Yes
— S7 routing	Yes
— Isochronous mode	No
— IRT	No
— MRP	No
— MRPD	No
— PROFlenergy	Yes
— Shared device	Yes
<ul> <li>— Number of IO Controllers with shared device, max.</li> </ul>	2

of IO devices and the quantity of configured user data.

#### Supports protocol for PROFINET IO Yes PROFIBUS Yes; CM 1243-5 (master) or CM 1242-5 (slave) required Yes; CM 1243-2 required **AS-Interface** Protocols (Ethernet) • TCP/IP Yes No • DHCP • SNMP Yes Yes • DCP • LLDP Yes Open IE communication

• TCP/IP	Yes
— Data length, max.	8 kbyte
<ul> <li>ISO-on-TCP (RFC1006)</li> </ul>	Yes
— Data length, max.	8 kbyte
• UDP	Yes
— Data length, max.	1 472 byte
Web server	
• supported	Yes
User-defined websites	Yes
Further protocols	
MODBUS	Yes
Communication functions	
S7 communication	Vec
• 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	16; dynamically
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	
<ul> <li>Number of configurable Traces</li> </ul>	2
<ul> <li>Memory size per trace, max.</li> </ul>	512 kbyte
Integrated Functions	
Number of counters	6
Counting frequency (counter) max.	100 kHz
Frequency measurement	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction interface	Up to 4 with SB 1222
	Up to 4 with SB 1222 Yes

Interference immunity against discharge of static electricity         • Interference immunity against discharge of static electricity         • Interference immunity of \$1000-4-2         • Test voltage at air discharge       8 kV         • Test voltage at contact discharge       6 kV         Interference immunity on supply lines acc. to       Ves         IEC 61000-4-4       • Ves         • Interference immunity on supply lines acc. to       Ves         IEC 61000-4-4       • Ves         • Interference immunity on supply lines acc. to       Ves         IEC 61000-4-4       • Ves         • Interference immunity against voltage surge       • Interference immunity against voltage surge         • Interference immunity against voltage surge       • Ves         IEC 61000-4-5       Ves         Interference immunity against toorducted variable disturbance induced by high-frequency fields       • Interference immunity against toorducted variable disturbance induced by high-frequency fields         • Interference immunity against toorducted variable disturbance induced by high-frequency fields       • Interference immunity against toorducted variable disturbance induced by high-frequency fields         • Interference immunity against voltage area       Yes         Emission of radio interference acc. to EN 55 011       • Ext of too 5011         • Linit class A, for use in industrial areas <td< th=""><th>EMC</th><th></th></td<>	EMC	
static electricity acc. to IEC 61000-4-2       8 kV         - Test voltage at air discharge       8 kV         - Test voltage at contact discharge       6 kV         Interference immunity to supply lines acc. to IEC 61000-4-4       Yes         Interference immunity against voltage surge       Yes         Interference immunity against voltage surge       Yes         Interference immunity against conducted variable disturburne induced by high-frequency fields       Yes         Interference immunity against conducted variable disturburne induced by high-frequency fields       Yes         Interference immunity against indufference       Yes         Emission of radio interference acc. to EN 55 011       Yes         Interference       Yes         CE mark	Interference immunity against discharge of static electri	city
- Test voltage at contact discharge         6 kV           Interference immunity to cable-borne interference         Yes           Interference immunity on supply lines acc. to IEC 61000-4-4         Yes           Interference immunity against voltage surge         Yes           Interference immunity against voltage surge         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 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 61000-4-5         Yes: Group 1           Limit class A, for use in industrial areas         Yes: When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011           Standards, approval         Yes           CE mark         Yes           UL approval         Yes           CE mark         Yes           CE mark         Yes           RCM (formerly C-TICK)         Yes           RCM (formerly C-TICK)         Yes           RCM (formerly C-TICK)         Yes		Yes
Interference immunity to activate or signal activities and the second se	— Test voltage at air discharge	8 kV
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 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     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     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     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     Interference immunity against conducted variable disturbance induced by high-frequency fields     Interference induced by fore S     Interfere	— Test voltage at contact discharge	6 kV
IEC 61000-4-4       Interference immunity on signal cables acc. to IEC 61000-4-4       Yes         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 high-frequency radiation acc. to IEC 61000-4-5       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 B, for use in residential areas       Yes; Group 1         Limit class B, for use in residential areas       Yes; Group 1         UL approval       Yes         CE mark       Yes         UL approval       Yes         CE mark       Yes         CE mark       Yes         RCM (formerly C-TICK)       Yes         RCM (formerly C-TICK)       Yes         RCM (formerly C-TICK)       Yes         Performance level according to ISO 13849-1       Yes         Performance level according to ISO 13849-1       Yes         Performance level according to ISO 13849-1       SIL a         SIL acc. to IEC 61508       SIL 3         Ambient temperature during operation       0 °C         min.       0 °C	Interference immunity to cable-borne interference	
Interference immunity against voltage surge       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 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 conducted variable disturbance induced by high-frequency fields       Yes         Emission of radio interference acc. to EN 55 011       Yes         Ulass A, for use in residential areas       Yes; Group 1         Limit 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         Standards, approval       Yes         CE mark       Yes         UL approval       Yes         RCM (formerly C-TICK)       Yes         RCA (formerly C-TICK)       Yes         Highest safety class achievable in safety mode       Yes         Interference filterance level according to ISO 13849-1       PLe         SiL acc. to IEC 61508       SiL 3		Yes
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 high-frequency rediation acc. to IEC 61000-4-6  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 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 CE mark     Yes CE mark     Yes CLus     Yes FM approval     Yes FM approval     Yes FM approval     Yes KC approval     Yes Highest safety class achievable in safety mode     Performance level according to ISO 13849-1     SIL acc. to IEC 61508  Ambient temperature during operation     min.     0 °C     horizontal installation, min.     0 °C     horizontal installation, max.     45 °C Ambient temperature during storage/transportation		Yes
IEC 61000-4-5         Interference immunity against conducted 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         • Limit class A, for use in industrial areas       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         Standards, approvals, certificates       Yes         CE mark       Yes         UL approval       Yes         CULus       Yes         FM approval       Yes         RCM (formerty C-TICK)       Yes         Marine approval       Yes         Highest safety class achievable in safety mode       Performance level according to ISO 13849-1         PLe       SIL ac. to IEC 61508       SIL 3         Ambient temperature during operation       0 °C         • min.       0 °C       0 °C         • horizontal installation, min.       0 °C         • horizontal installation, min.       0 °C         • horizontal installation, max.       45 °C         Ambient temperature during storage/transportation       0 °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       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       Yes         CE mark       Yes         UL approval       Yes         cULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         KC approval       Yes         Highest safety class achievable in safety mode       PLe         • SIL acc. to IEC 61508       SIL 3         Ambient temperature during operation       0 °C         • max.       55 °C         • horizontal installation, min.       0 °C         • horizontal installation, min.       0 °C         • vertical installation, max.       45 °C         • vertical installation, max.       45 °C		Yes
Initiality act, bit IC 61000-4-6       Image: bit IC 61000-4-6         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            Standards, approvals, certificates          Yes            CE mark       Yes            UL approval       Yes            CULus       Yes            CM (formerly C-TICK)       Yes            RCM (formerly C-TICK)       Yes            RCA approval       Yes            Highest safety class achievable in safety mode           Yes            Performance level according to ISO 13849-1            SIL acc. to IEC 61508            SIL 3             Ambient temperature during operation             emin.          0 °C             emin.            emi	Interference immunity against conducted variable distur	bance induced 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         Standards, approvals, certificates       CE         CE mark       Yes         UL approval       Yes         cULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         KC approval       Yes         Marine approval       Yes         Highest safety class achievable in safety mode       •         • Performance level according to ISO 13849-1       PLe         • SIL acc. to IEC 61508       SIL 3         Ambient temperature during operation       • min.         • min.       0 °C         • max.       55 °C         • horizontal installation, min.       0 °C         • horizontal installation, min.       0 °C         • vertical installation, max.       55 °C         • vertical installation, max.       45 °C         Ambient temperature during storage/transportation    <		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         Standards, approvals, certificates          CE mark       Yes         UL approval       Yes         cULus       Yes         cULus       Yes         FM approval       Yes         cULus       Yes         RCM (formerly C-TICK)       Yes         KC approval       Yes         Marine approval       Yes         Highest safety class achievable in safety mode          • Performance level according to ISO 13849-1       SL 3         Ambient conditions       SIL 3         Ambient temperature during operation       or C         • min.       0 °C         • max.       55 °C         • horizontal installation, min.       0 °C         • vertical installation, min.       0 °C         • vertical installation, max.       55 °C         • vertical installation, max.       45 °C         • vertical installation, max.       45 °C         • vertical installation, max.       45 °C	Emission of radio interference acc. to EN 55 011	
with the limits for Class B according to EN 55011         Standards, approvals, certificates         CE mark       Yes         UL approval       Yes         UL approval       Yes         cULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         KC approval       Yes         Marine approval       Yes         Highest safety class achievable in safety mode       •         • Performance level according to ISO 13849-1       PLe         • SIL acc. to IEC 61508       SIL 3         Ambient conditions         Ambient temperature during operation         • min.       0 °C         • max.       55 °C         • horizontal installation, min.       0 °C         • vertical installation, max.       55 °C         • vertical installation, max.       45 °C         • vertical installation, max.       45 °C         • Ambient temperature during storage/transportation       5°C	<ul> <li>Limit class A, for use in industrial areas</li> </ul>	Yes; Group 1
CE mark       Yes         UL approval       Yes         cULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         RCM (formerly C-TICK)       Yes         Marine approval       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       Ambient temperature during operation         • min.       0 °C         • max.       55 °C         • horizontal installation, min.       0 °C         • horizontal installation, max.       55 °C         • vertical installation, min.       0 °C         • vertical installation, max.       45 °C         Ambient temperature during storage/transportation       45 °C	<ul> <li>Limit class B, for use in residential areas</li> </ul>	
UL approval       Yes         cULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         KC approval       Yes         Marine approval       Yes         Highest safety class achievable in safety mode       Yes         • Performance level according to ISO 13849-1       PLe         • SIL acc. to IEC 61508       SIL 3         Ambient conditions       SIL 3         Ambient temperature during operation       0 °C         • min.       0 °C         • horizontal installation, min.       0 °C         • horizontal installation, min.       0 °C         • vertical installation, max.       55 °C         • vertical installation, max.       45 °C         Ambient temperature during storage/transportation       50 °C	Standards, approvals, certificates	
cULus       Yes         FM approval       Yes         RCM (formerly C-TICK)       Yes         KC approval       Yes         Marine approval       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         Ambient temperature during operation       0 °C         • min.       0 °C         • max.       55 °C         • horizontal installation, min.       0 °C         • vertical installation, max.       55 °C         • vertical installation, max.       45 °C         Ambient temperature during storage/transportation	CE mark	Yes
FM approval     Yes       RCM (formerly C-TICK)     Yes       KC approval     Yes       Marine approval     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     O °C       • min.     0 °C       • max.     55 °C       • horizontal installation, min.     0 °C       • horizontal installation, min.     0 °C       • vertical installation, max.     55 °C       • vertical installation, min.     0 °C       • vertical installation, max.     45 °C       Ambient temperature during storage/transportation		
RCM (formerly C-TICK)       Yes         KC approval       Yes         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       SIL 3         Ambient temperature during operation       0 °C         • max.       55 °C         • horizontal installation, min.       0 °C         • horizontal installation, max.       55 °C         • vertical installation, max.       55 °C		
KC approval       Yes         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       SIL 3         Ambient temperature during operation       0 °C         • min.       0 °C         • horizontal installation, min.       0 °C         • horizontal installation, min.       0 °C         • vertical installation, max.       55 °C         • vertical installation, max.       0 °C         • vertical installation, max.       45 °C		
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       O°C         • min.       0 °C         • max.       55 °C         • horizontal installation, min.       0 °C         • horizontal installation, min.       0 °C         • vertical installation, max.       55 °C         • vertical installation, max.       55 °C         • vertical installation, max.       55 °C         • vertical installation, max.       45 °C		
Highest safety class achievable in safety mode         • Performance level according to ISO 13849-1       PLe         • SIL acc. to IEC 61508       SIL 3         Ambient conditions       0 °C         • min.       0 °C         • max.       55 °C         • horizontal installation, min.       0 °C         • horizontal installation, max.       55 °C         • vertical installation, max.       45 °C		
<ul> <li>Performance level according to ISO 13849-1</li> <li>SIL acc. to IEC 61508</li> <li>SIL 3</li> <li>Ambient conditions</li> <li>Ambient temperature during operation         <ul> <li>min.</li> <li>0 °C</li> <li>max.</li> <li>55 °C</li> <li>horizontal installation, min.</li> <li>0 °C</li> <li>horizontal installation, max.</li> <li>55 °C</li> <li>vertical installation, max.</li> <li>0 °C</li> <li>vertical installation, max.</li> <li>45 °C</li> </ul> </li> <li>Ambient temperature during storage/transportation</li> </ul>		Yes
<ul> <li>SIL acc. to IEC 61508</li> <li>SIL 3</li> <li>Ambient conditions</li> <li>Ambient temperature during operation         <ul> <li>min.</li> <li>0 °C</li> <li>max.</li> <li>horizontal installation, min.</li> <li>0 °C</li> <li>horizontal installation, min.</li> <li>0 °C</li> <li>vertical installation, max.</li> <li>vertical installation, min.</li> <li>0 °C</li> <li>vertical installation, max.</li> <li>0 °C</li> </ul> </li> <li>Mathematical temperature during storage/transportation</li> </ul>		PLo
Ambient conditions         Ambient temperature during operation         • min.       0 °C         • max.       55 °C         • horizontal installation, min.       0 °C         • horizontal installation, max.       55 °C         • vertical installation, max.       55 °C         • vertical installation, max.       0 °C         • vertical installation, max.       55 °C         • vertical installation, max.       0 °C         • vertical installation, max.       45 °C         Ambient temperature during storage/transportation       45 °C	-	
Ambient temperature during operation         • min.       0 °C         • max.       55 °C         • horizontal installation, min.       0 °C         • horizontal installation, max.       55 °C         • vertical installation, min.       0 °C         • vertical installation, min.       0 °C         • vertical installation, min.       0 °C         • vertical installation, max.       45 °C	<ul> <li>SIL acc. to IEC 61508</li> </ul>	SIL 3
• min.0 °C• max.55 °C• horizontal installation, min.0 °C• horizontal installation, max.55 °C• vertical installation, min.0 °C• vertical installation, max.45 °C• Mbient temperature during storage/transportation45 °C	Ambient conditions	
• max.       55 °C         • horizontal installation, min.       0 °C         • horizontal installation, max.       55 °C         • vertical installation, min.       0 °C         • vertical installation, max.       45 °C         • Norizontal installation, max.       45 °C	Ambient temperature during operation	
• horizontal installation, min.     0 °C       • horizontal installation, max.     55 °C       • vertical installation, min.     0 °C       • vertical installation, max.     45 °C	• min.	0°0
• horizontal installation, max.       55 °C         • vertical installation, min.       0 °C         • vertical installation, max.       45 °C         Ambient temperature during storage/transportation	• max.	55 °C
vertical installation, min.         0 °C         45 °C     Ambient temperature during storage/transportation	<ul> <li>horizontal installation, min.</li> </ul>	0°0
• vertical installation, max. 45 °C Ambient temperature during storage/transportation	<ul> <li>horizontal installation, max.</li> </ul>	55 °C
Ambient temperature during storage/transportation	<ul> <li>vertical installation, min.</li> </ul>	O° O
	<ul> <li>vertical installation, max.</li> </ul>	45 °C
• min40 °C	Ambient temperature during storage/transportation	
	• min.	-40 °C

● max.	70 °C
Air pressure acc. to IEC 60068-2-13	
<ul> <li>Storage/transport, min.</li> </ul>	660 hPa
• Storage/transport, max.	1 139 hPa
Relative humidity	
• Operation, max.	95 %; no condensation
Vibrations	
<ul> <li>Vibration resistance during operation acc. to IEC 60068-2-6</li> </ul>	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
<ul> <li>Operation, tested according to IEC 60068-2-6</li> </ul>	Yes
Shock testing	
<ul> <li>tested according to IEC 60068-2-27</li> </ul>	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
Pollutant concentrations	
<ul> <li>SO2 at RH &lt; 60% without condensation</li> </ul>	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
Configuration	
Programming	
Programming language	
— LAD	Yes; incl. failsafe
— FBD	Yes; incl. failsafe
— SCL	Yes
Know-how protection	
<ul> <li>User program protection/password protection</li> </ul>	Yes
Copy protection	Yes
<ul> <li>Block protection</li> </ul>	Yes
Cycle time monitoring	
● adjustable	Yes
Dimensions	
Width	110 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	435 g
last modified:	07/10/2020