SIEMENS

Data sheet

6ES7647-8BA21-7RA1

SIMATIC IPC227E (Nanobox PC); 1x display port; 2x 10/100/1000 Mbit/s Ethernet RJ45; 1 x USB3.0, 3 x USB2.0; CFast slot; 24 V DC industrial power supply Celeron N2807 (2C/2T) 4 GB RAM; Box: Basis without COM Windows 10 IoT Enterprise LTSB 2016, 64 bit, MUI (en, de, fr, it, es) 320 GB HDD; without SIMATIC software DIN rail mounting

| Installation type/mounting | |
|--|--|
| Mounting | DIN rail, wall mounting, portrait mounting |
| Design | Box PC, built-in unit |
| Supply voltage | |
| Type of supply voltage | 24 V DC |
| Mains buffering | |
| Mains/voltage failure stored energy time | 20 ms |
| Processor | |
| Processor type | Intel Celeron N2807 / N2930, Intel Atom E3845 |
| Chipset | SoC |
| Graphic | |
| Graphics controller | Integrated |
| Drives | |
| Hard disk | 2.5" SATA ≥ 320 GB |
| SSD | Yes; 256 Eco / 240 / 480 GB |
| Memory | |
| Type of memory | DDR3L SO-DIMM |
| Main memory | 2/4/8 GB |
| Capacity of main memory, max. | 8 Gbyte |
| Data areas and their retentivity | |
| Retentive data area (incl. timers, counters, flags), max. | 512 kbyte; 128 KB can be stored in the buffer time; optional |
| Hardware configuration | |
| Slots | |
| • free slots | 1x PCle (x1) (optional) |
| Number of PCI slots | 1; Optional |
| Number of compact flash slots | 1; CFast |
| Interfaces | |
| Number of industrial Ethernet interfaces | 2; 2x Ethernet (RJ45) |
| USB port | 1x USB 3.0 / 3x USB 2.0 |
| Connection for keyboard/mouse | USB / USB |
| serial interface | Without / 2x COM (RS 232 / 422 / 485), selectable in the BIOS |
| Video interfaces | |
| Graphics interface | 1x DisplayPort |
| Industrial Ethernet | |
| Industrial Ethernet interface | 2x Ethernet (RJ45) |
| — 100 Mbps | Yes |
| — 1000 Mbps | Yes |
| Integrated Functions | |
| Monitoring functions | |
| Temperature monitoring | Yes |
| Watchdog | Yes |
| Status LEDs | 1x power, 3x user |
| • Fan | No |
| Monitoring function via network | Optional |
| EMC | |
| Interference immunity against discharge of static electricity | |
| Interference immunity against discharge of static electricity | ±6 kV contact discharge acc. to IEC 61000-4-2; ±8 kV air discharge acc. to IEC 61000-4-2 |
| Interference immunity against high-frequency electromagnetic field | ds |

| Uniterference immunity in castle-borne interference Interference immunity on supply cables Interference immunity on signal cables > 30m Interference immunity operation interference Interference immunity operation interference Interference immunity in originate fields Interference immunity int | Interference immunity against high frequency radiation | 10 V/m for 80 - 1 000 MHz and 1.4 - 2 GHz, 80% AM acc. to IEC 61000-4-3; 3 |
|--|---|--|
| Interference immunity on supply cables 22 kM acc. to IEC 61000-4-5, burst ± 14 W acc. to IEC 61000-4-5, surge symmetric 24 W acc. to IEC 61000-4-5, surge symmetric 24 W acc. to IEC 61000-4-5, surge symmetric 24 W acc. to IEC 61000-4-6, burst length > 3 m at W acc. to IEC 61000-4-2 burst length > 3 m at W acc. to IEC 61000-4-2 burst length > 3 m at W acc. to IEC 61000-4-2 burst length > 3 m at W acc. to IEC 61000-4-2 burst length > 3 m at W acc. to IEC 61000-4-2 burst length > 3 m at W acc. to IEC 61000-4-2 burst length > 3 m at W acc. to IEC 61000-4-2 burst length > 3 m at W acc. to IEC 61000-4-2 burst length > 3 m at W acc. to IEC 61000-4-2 burst length > 3 m at W acc. to IEC 61000-4-2 burst length > 3 m at W acc. to IEC 61000-4-2 burst length > 3 m at W acc. to IEC 61000-4-2 burst length > 3 m at W acc. | | |
| symmetric, 32 kV acc. to IEC 610004-5, surge asymmetric 12 kV acc. to IEC 610004-6, surge asymmetric 12 kV acc. to IEC 610004-6, surge asymmetric 12 kV acc. to IEC 610004-8, surge asymmetric 12 kV acc. to IEC 610004-6, surge asymmetric 12 kV acc. to IEC 610004-8, surge asymmetric 12 kV acc. | Interference immunity to cable-borne interference | |
| Interference immunity against voltage surge | Interference immunity on supply cables | |
| interference immunity against voltage surge asymmetric interference immunity to magnetic fields at 50 Hz Emission of conducted and non-conducted interference asymmetric interference emission via line/AC current cables begins and class of protection IP degree of protection of | Interference immunity on signal cables >30m | ±2 kV acc. to IEC 61000-4-5, surge, length > 30 m |
| Literateric interference ±2 kV acc. to IEC 61000-4-5, surge asymmetric symmetric interference ±1 kV acc. to IEC 61000-4-5, surge asymmetric symmetric interference ±1 kV acc. to IEC 61000-4-5, surge asymmetric ±1 kV acc. to IEC 61000-4-5, surge asymmetric ±1 kV acc. to IEC 61000-4-8 ±1 kV acc. to IEC 61000-4-2 (IEC 61 | Interference immunity on signal cables < 30m | ±1 kV acc. to IEC 61000-4-4; burst; length < 3 m; ±2 kV acc. to IEC 61000-4-4; |
| asymmetric interference symmetric interference interference immunity to magnetic fields at 50 Hz Interference immunity to magnetic fields at 50 Hz Emission of conducted and non-conducted interference interference emission via line/AC current cables En 61000-6-3. En 61000-6-4. CISPR 22 Class B, FCC Class A Degree and class of protection IP degree of protection IP degree of protection Standards, approvals, certificates CE mark Ves UL approval Yes CULUS COS Yes CULUS Class 1200-8-22005 COS Yes | | burst; length > 3 m |
| enterference immunity to magnetic fields | Interference immunity against voltage surge | |
| Interference immunity to magnetic fields Interference immunity to magnetic fields at 50 Hz Emission of conducted and non conducted interference Interference emission via line/AC current cables En 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A Degree and class of protection IP degree of protection IP degree of protection IP degree of protection Standards, approvals, certificates CE mark Ves UL. spproval Ves CC mark Ves CLUS RCM (formetry C-TICK) Ves RCM (formetry C-TICK) Ves FCC Yes ENC CE, EN 61000-6-4-2007, EN 61000-6-2-2005 Data protection Protection against foreign bodies > 1 mm Usas in hazardous areas ATEX Zone 2 ICCS Z | asymmetric interference | ±2 kV acc. to IEC 61000-4-5, surge asymmetric |
| Interference immunity to magnetic felds at 50 Hz Emission of conducted and non-conducted interference Interference emission via fina/AC current cables Profession of protection IP40 IP | symmetric interference | ±1 kV acc. to IEC 61000-4-5, surge symmetric |
| Einseson of conducted and non-conducted interference Interference emission via limelAC current cables Ein 61000-6-3, Ein 61000-6-4, CISPR 22 Class B, FCC Class A Degree and class of protection IP degree of protection IV es UL approval Ves UL 508 Ves cUL 508 CUL 508 CV yes CCE mark Ves CCE, Ein 61000-6-4-2007, Ein 61000-6-2-2005 Ein CCC Ein CCC | Interference immunity to magnetic fields | |
| ■ Interference emission via line/AC current cables EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A | Interference immunity to magnetic fields at 50 Hz | 100 A/m; to IEC 61000-4-8 |
| Degree and class of protection | Emission of conducted and non-conducted interference | |
| IP degree of protection Standards, approvals, certificates CE mark Ves UL approval • UL 508 • UL 508 • UL 508 CUlus RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes FCC Yes FMC CE, R 61000-8-4:2007, EN 61000-8-2:2005 Dust protection Protection against foreign bodies > 1 mm Use in hazardous areas • ATEX Zone 2 • ICER Xone 2 • ICER Stone 3 • ATEX Sune 3 • ATEX Sune 3 • ATEX Sune 3 • ICER Xone 4 • ICER Xone 5 • ICER Xone 5 • ICER Xone 6 • ICER Xone 7 • ICER Xone 7 • ICER Xone 8 • ATEX Sune 8 • ICER Xone 9 | Interference emission via line/AC current cables | EN 61000-6-3, EN 61000-6-4, CISPR 22 Class B, FCC Class A |
| Standards, approvals, certificates CE mark Ves UL approval • UL 508 CULus Pes CULUS RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes PCC EMC CE, EN 61000-6-4:2007, EN 61000-6-2:2005 Dust protection Dust protection against foreign bodies > 1 mm Wes in hazardous areas • ATEX Zone 2 • ECCEX Zone 2 • CULUs Class I Zone 2. Division 2 Yes; Optional Marine approval • Germanischer Lloyd (GL) • American Bureau of Shipping (ABS) • Bureau Veritas (BV) • Det Norsek Veritas (DNV) • Corean Register of Shipping (KRS) • Lloyds Register of Shipping (KRS) • Lloyds Register of Shipping (KRS) • Lloyds Register of Shipping (KRS) • Chinese Classification Society (CCS) Ambient conditions Ambient temperature during operation • min. • max. 60 °C Relative humidity • Relative humidity • Relative humidity • Relative humidity • Vibration resistance during operation acc. to IEC 60068-2-6 2-6 Shock testing • Shock load during operation Tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 p) **Tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 p) **Vibrations • Vibration resistance during operation acc. to IEC 60068-2-6: 10 IN IEC 60068-2-77: 150 m/s², 11 ms Operating systems pre-installed operating system Additional Info on operating system View Operating system Verico Classification society operation operation operating system View Operating system Verico Control Signature operation operation operation operating operation operating operation operating system View Operating system View Operating system View Operating system Vericopating System Veri | Degree and class of protection | |
| CE mark UL approval • UL 508 • UL 508 • UL 508 CULUS RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes FCC Yes EMC CE, EN 61000-6-4:2007, EN 61000-6-2:2005 Dust protection Protection against foreign bodies > 1 mm Use in hazardous areas • ATEX Zone 2 • EECEX Zone 2 • ECULUS Class I Zone 2, Division 2 Yes: Optional Aramican Bureau of Shipping (ABS) • American Bureau of Shipping (ABS) • Bureau Vertias (BV) • Det Norske Vertias (BV) • Norsan Register of Shipping (RS) • Nippon Kaji Kryokai (Class NK) • Chinese Classification Society (CCS) Ambient conditions Ambient temperature during storage/transportation • min. • max. 60 °C Ambient temperature during storage/transportation • min. • max. Relative humidity • Relative humidity • Relative humidity • Shock load during operation acc. to IEC 60068-2-6 2-6 Shock leading system Pre-installed operating system Vibrodons Pres: Optional Vibrodons Vibrodons Vibrodons Vibrodons Vibrodons Vibrodons Vibrodons Vibrodons Vibrodons Additional info on operating system vibrod operating system Vibrodors Vibrodons Vi | IP degree of protection | IP40 |
| UL soproval UL soproval UL so Yes RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes FCC Yes EMC CE, EM 61000-6-4:2007, EM 61000-6-2:2005 Dust protection Use in hazardous areas ATEX Zone 2 **(ECEX Zone 2 **(ECEX Zone 2 **(CULus Class I Zone 2, Division 2 Marine approval Germanischer Lloyd (GL) **American Bureau of Shipping (ABS) **Bureau Veritas (BV) **Optional Chroma Register of Shipping (RRS) **De Horske Veritas (DNV) **Norean Register of Shipping (RRS) **L loyds Register of Shipping (RRS) **L loyds Register of Shipping (RS) **L loyds Register of Shipping (LRS) **Onlinese Classification Society (CCS) **Ambitiont conditions Ambitiont conditions Ambitiont conditions Ambition temperature during operation **min.** **max.** **Belative humidity **Relative humidity **Relative humidity **Relative humidity **Relative humidity **Tested according to IEC 60068-2-78. IEC 60068-2-30: Operation: 5 % to 85 % at 25 / 55 °C (no condensation). storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) **Vibrations **Vibrations **Vibrations **Auticular Systems **Jordonal Info on operating system **Vibrional Info on operating system **Vibroorating systems **View Operating system **Vibroorating systems **View Operating system **View Opera | Standards, approvals, certificates | |
| Ves | CE mark | Yes |
| CULLUS RCM (formerly C-TICK) Yes RCM (formerly C-TICK) Yes FCC Yes EMC CE, EN 61000-6-4:2007, EN 61000-6-2:2005 Dust protection Use in hazardous areas • ATEX Zone 2 • (ECEX Zone 2) • | UL approval | Yes |
| RCM (formerly C-TICK) KC approval KC approval Yes FCC Yes EMC CCE, EN 61000-6-4:2007, EN 61000-6-2:2005 Dust protection Use in hazardous areas • ATEX Zone 2 • IECEx Zone 2 • IECEx Zone 2 • CULus Class I Zone 2, Division 2 Personal Germanischer Lloyd (GL) • American Bureau of Shipping (ABS) • Bureau Veritas (BV) • Cermanischer Lloyd (GL) • American Bureau of Shipping (ABS) • Bureau Veritas (BV) • Det Norske Veritas (DNV) • Korean Register of Shipping (KRS) • Lloyds Register of Shipping (KRS) • Nippon Kaiji Kyokai (Class NK) • Chinese Classification Society (CCS) Ambient temperature during operation • min. • max. Ambient temperature during operation • min. • max. Ambient temperature during storage/transportation • min. • max. Relative humidity • Shock load during operation acc. to IEC 60068-2-6 2-6 Shock Isetting • Windows 7 Ultimate 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUI, Windows Embedded Standard 7 E | • UL 508 | Yes |
| Yes FCC Yes | cULus | Yes |
| FCC EMG CE, EN 61000-6-4:2007, EN 61000-6-2:2005 Dust protection Use in nazardous areas • ATEX Zone 2 • IECEX Zone 2 • CULus Class I Zone 2, Division 2 American Bureau of Shipping (ABS) • Bureau Veritas (BV) • Det Norske Verifas (DNV) • Oet Norske Verifas (DNV) • Norean Register of Shipping (KRS) • Lloyds Register of Shipping (KRS) • Unoyds Register of Shipping (KRS) • Chinese Classification Society (CCS) **Ambient temperature during operation • min. • max. Ambient temperature during storage/transportation • min. • max. • 60 °C Relative humidity • Relative humidity • Relative humidity • Relative humidity • Shock load during operation acc. to IEC 60068- 2-6 Shock testing • Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit and popular a | RCM (formerly C-TICK) | Yes |
| EMC Dust protection Protection Protection against foreign bodies > 1 mm Vese in hazardous areas • ATEX Zone 2 Yes; Optional • IECEx Zone 2 Yes; Optional • Cermanischer Lloyd (GL) Yes • Cermanischer Lloyd (GL) Yes • American Bureau of Shipping (ABS) Yes • Bureau Veritas (BV) Yes • Det Norske Veritas (DNV) Yes • Lloyds Register of Shipping (LRS) Yes • Nippon Kajii (Kyokai (Class NK) Yes • Nippon Kajii (Kyoka | KC approval | Yes |
| Dust protection Use in hazardous areas ATEX Zone 2 (EICEX Zone 2 | FCC | Yes |
| Ves. Optional | EMC | CE, EN 61000-6-4:2007, EN 61000-6-2:2005 |
| ATEX Zone 2 IECEx Zone 2 CULus Class I Zone 2, Division 2 Wes; Optional Yes; Optional Yes; Optional Yes; Optional Amarine approval Germanischer Lloyd (GL) American Bureau of Shipping (ABS) Bureau Veritas (BV) Det Norske Veritas (DNV) Korean Register of Shipping (KRS) Lloyds Register of Shipping (KRS) Lloyds Register of Shipping (KRS) Nippon Kaiji Kyokai (Class NK) Chinese Classification Society (CCS) Ambient conditions Ambient temperature during operation min. max. 60 °C Ambient temperature during storage/transportation min. max. 60 °C Relative humidity Relative humidity Relative humidity Tested according to IEC 60068-2-78, IEC 60068-2-30. Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) Vibrations Vibrations Vibration resistance during operation o vicinal standard operation Tested according to IEC 60068-2-78, IE | Dust protection | Protection against foreign bodies > 1 mm |
| IECEX Zone 2 • cULus Class I Zone 2, Division 2 Yes; Optional Arine approval Germanischer Lloyd (GL) • American Bureau of Shipping (ABS) • Bureau Veritas (BV) • Det Norske Veritas (DNV) • Korean Register of Shipping (KRS) • Lloyds Register of Shipping (KRS) • Nippon Kaiji Kyokai (Class NK) • Chinese Classification Society (CCS) Ambient conditions Ambient temperature during operation • min. • max. • 0° C; -20 °C as option • max. Ambient temperature during storage/transportation • min. • max. • 60 °C Relative humidity • Relative humidity • Relative humidity • Relative numing operation acc. to IEC 60068-2-6 • tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport. 5 % to 95 % at 25 / 55 °C (no condensation) • tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation) according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation) according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation) according to IEC 60068-2-78, I | Use in hazardous areas | |
| CULus Class I Zone 2, Division 2 Marine approval Germanischer Lloyd (GL) American Bureau of Shipping (ABS) Bureau Veritas (BV) Det Norske Veritas (DNV) Korean Register of Shipping (KRS) Lloyds Register of Shipping (KRS) Nippon Kajij Kyokai (Class NIK) Chinese Classification Society (CCS) Ambient conditions Ambient temperature during operation min. min. 0 °C; -20 °C as option max. 60 °C Ambient temperature during storage/transportation min. canacter and the second of t | ATEX Zone 2 | Yes; Optional |
| Germanischer Lloyd (GL) | • IECEx Zone 2 | Yes; Optional |
| Germanischer Lloyd (GL) American Bureau of Shipping (ABS) Bureau Veritas (BV) Det Norske Veritas (DNV) Korean Register of Shipping (KRS) Lloyds Register of Shipping (LRS) Albient conditions Ambient conditions Ambient temperature during operation min. max. Mine max. Mine Max. Mine Relative humidity Relative humidity Relative humidity Relative humidity Relative numidity Ves (Noraen Register of Shipping (LRS)) Tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Norae Relative Diving operation Vibrations At Vibration resistance during operation Norae Relative furning operation Norae Relative furning operation Norae Relative furning operation Norae Relative furning operation acc. to IEC 60068-2-8 furning operation operati | • cULus Class I Zone 2, Division 2 | Yes; Optional |
| American Bureau of Shipping (ABS) Bureau Veritas (BV) Det Norske Veritas (DNV) Ves Det Norske Veritas (DNV) Korean Register of Shipping (KRS) Lloyds Register of Shipping (LRS) Nippon Kaiji Kyokai (Class NK) Chinese Classification Society (CCS) Ambient conditions Ambient temperature during operation min. o °C; -20 °C as option min. max. 60 °C Ambient temperature during storage/transportation min. o °C; -20 °C Manual Company min. o °C Relative humidity Relative humidity Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) Vibrations Vibration resistance during operation acc. to IEC 60068-2-6 Shock testing Shock load during operation Tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating systems pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUl; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUl; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUl; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUl; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUl; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUl; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, MUl; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, Mul; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, Mult; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, Mult; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, Mult; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, Mult; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, Mult; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, Mult; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, Mult; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, Mult; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, Mult; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, Mult; Windows Embedded Standard 7 E/P, 32-bit / 64-bit, Mult; Windows Embedd | Marine approval | |
| Bureau Veritas (BV) Det Norske Veritas (DNV) Korean Register of Shipping (KRS) Lloyds Register of Shipping (LRS) Lloyds Register of Shipping (LRS) Nippon Kajij Kyokai (Class NK) Chinese Classification Society (CCS) Ambient conditions Ambient temperature during operation min. O °C; -20 °C as option max. 60 °C Ambient temperature during storage/transportation min. C 20 °C max. C 60 °C Relative humidity Relative humidity Tested according to IEC 60068-2-78, IEC 60068-2-30. Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) Vibrations Vibration resistance during operation Vibration resistance during operation Tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock testing Shock load during operation Tested according to IEC 60068-2-7: 150 m/s², 11 ms Operating systems pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system Ves; Optional | Germanischer Lloyd (GL) | Yes |
| Obet Norske Veritas (DNV) Korean Register of Shipping (KRS) Korean Register of Shipping (LRS) Lloyds Register of Shipping (LRS) Nippon Kalji Kyokai (Class NK) Yes Nippon Kalji Kyokai (Class NK) Yes Chinese Classification Society (CCS) Ambient conditions Ambient temperature during operation min. 0 °C; -20 °C as option max. 60 °C Ambient temperature during storage/transportation min. -20 °C max. 60 °C Relative humidity Relative humidity Relative humidity Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) Vibrations Vibration resistance during operation acc. to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock testing Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating systems pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system vestor Optional: SIMATIC Industrial OS without operating system Yes; Optional | American Bureau of Shipping (ABS) | Yes |
| Korean Register of Shipping (KRS) Lloyds Register of Shipping (LRS) Nippon Kaiji Kyokai (Class NK) Chinese Classification Society (CCS) Ambient conditions Ambient temperature during operation min. | Bureau Veritas (BV) | Yes |
| Lloyds Register of Shipping (LRS) Nippon Kaiji Kyokai (Class NK) Yes Chinese Classification Society (CCS) Ambient conditions Ambient temperature during operation • min. • max. • 60 °C Ambient temperature during storage/transportation • min. • max. • 60 °C Ambient temperature during storage/transportation • min. • 20 °C • max. • 60 °C Relative humidity • Relative humidity • Relative humidity • Vibrations • Vibration resistance during operation acc. to IEC 60068-2-6 | Det Norske Veritas (DNV) | Yes |
| Nippon Kaiji Kyokai (Class NK) Chinese Classification Society (CCS) Yes Ambient conditions Ambient temperature during operation min. max. 60 °C Ambient temperature during storage/transportation min. -20 °C Ambient temperature during storage/transportation min. -20 °C max. 60 °C Relative humidity Relative humidity Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) Vibrations Vibration resistance during operation acc. to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock lesting Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating systems Pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system Yes; Optional | Korean Register of Shipping (KRS) | Yes |
| Chinese Classification Society (CCS) Ambient conditions Ambient temperature during operation ini. ini. ini. ini. ini. ini. ini. | Lloyds Register of Shipping (LRS) | Yes |
| Ambient conditions Ambient temperature during operation • min. • max. 60 °C Ambient temperature during storage/transportation • min. • max. 60 °C Ambient temperature during storage/transportation • min. • max. 60 °C Relative humidity • Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) Vibrations • Vibration resistance during operation acc. to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock testing • Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating systems pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system ves; Optional | Nippon Kaiji Kyokai (Class NK) | Yes |
| Ambient temperature during operation • min. • max. 60 °C Ambient temperature during storage/transportation • min. • max. 60 °C Relative humidity • Relative humidity • Relative humidity • Relative humidity • Vibrations • Vibration resistance during operation acc. to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock testing • Shock load during operation • Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit and info on operating system Without operating system • Wishalf on operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit and info on operating system Yes; Optional | Chinese Classification Society (CCS) | Yes |
| min. max. 60 °C Ambient temperature during storage/transportation min. -20 °C max. 60 °C Relative humidity Relative humidity Relative humidity Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) Vibrations Vibration resistance during operation acc. to IEC 60068-2-6 Shock testing Shock load during operation Tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating systems Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system Ves; Optional | Ambient conditions | |
| max. Ambient temperature during storage/transportation min. -20 °C 60 °C Relative humidity Relative humidity Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) Vibrations Vibration resistance during operation acc. to IEC 60068-2-6 2-6 Shock testing Shock load during operation Tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating systems Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system Yes; Optional | Ambient temperature during operation | |
| Ambient temperature during storage/transportation • min. • max. 60 °C Relative humidity • Relative humidity • Relative humidity • Relative humidity • Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) Vibrations • Vibration resistance during operation acc. to IEC 60068-2-6 2-6 Shock testing • Shock load during operation Tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating systems pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system ves: Optional | • min. | 0 °C; -20 °C as option |
| min. -20 °C 60 °C Relative humidity Relative humidity Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) Vibrations Vibration resistance during operation acc. to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock testing Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating systems Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system yes; Optional | ● max. | 60 °C |
| ● max. Relative humidity ■ Relative humidity ■ Relative humidity ■ Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) Vibrations ■ Vibration resistance during operation acc. to IEC 60068-2-6 ■ Shock testing ■ Shock load during operation Tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating systems Pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system Optional: SIMATIC Industrial OS Yes; Optional | Ambient temperature during storage/transportation | |
| Relative humidity Relative humidity Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) Vibrations Vibration resistance during operation acc. to IEC 60068-2-6 Shock testing Shock load during operation Tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock testing Per-installed operating systems Pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system Optional: SIMATIC Industrial OS without operating system Yes; Optional | • min. | -20 °C |
| ● Relative humidity Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) Vibrations ● Vibration resistance during operation acc. to IEC 60068-2-6 2-6 Shock testing ● Shock load during operation Tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock testing ● Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating systems pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system optional: SIMATIC Industrial OS without operating system Yes; Optional | ● max. | 60 °C |
| at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no condensation) Vibrations • Vibration resistance during operation acc. to IEC 60068-2-6 2-6 Shock testing • Shock load during operation Tested according to IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock testing • Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating systems pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit optional: SIMATIC Industrial OS without operating system Yes; Optional | Relative humidity | |
| ● Vibration resistance during operation acc. to IEC 60068- 2-6 tested to DIN IEC 60068-2-6: 10 Hz to 58 Hz: 0.075 mm, 58 Hz to 200 Hz: 9.8 m/s² (1 g) Shock testing ● Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating systems pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system without operating system Yes; Optional | · | at 30 °C (no condensation), storage / transport: 5 % to 95 % at 25 / 55 °C (no |
| 2-6 m/s² (1 g) Shock testing ■ Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating systems pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system optional: SIMATIC Industrial OS without operating system Yes; Optional | Vibrations | |
| ● Shock load during operation Tested according to IEC 60068-2-27: 150 m/s², 11 ms Operating systems Pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system optional: SIMATIC Industrial OS without operating system Yes; Optional | 2-6 | |
| Operating systems pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system optional: SIMATIC Industrial OS without operating system Yes; Optional | - v | |
| pre-installed operating system Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit Additional info on operating system optional: SIMATIC Industrial OS without operating system Yes; Optional | | Tested according to IEC 60068-2-27: 150 m/s², 11 ms |
| 32-bit / 64-bit Additional info on operating system optional: SIMATIC Industrial OS without operating system Yes; Optional | Operating systems | |
| without operating system Yes; Optional | pre-installed operating system | |
| | Additional info on operating system | optional: SIMATIC Industrial OS |
| pre-installed operating system | without operating system | Yes; Optional |
| | pre-installed operating system | |

| • Windows 7 | Yes; Ultimate 32 bit or 64 bit |
|---|---|
| • Windows 10 | Yes; Windows 10 IoT Enterprise 2016 LTSB, 64bit, MUI |
| Windows 10 Enterprise | Yes; Windows 10 IoT Enterprise 2019 LTSC, 64 bit, MUI |
| Software | |
| SIMATIC Software | Optionally with pre-installed SIMATIC WinCC RT Advanced / Software Controller CPU 1500S software bundle |
| Dimensions | |
| Width | 191 mm |
| Height | 100 mm |
| Depth | 60 mm |

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