## **SIEMENS**

## **Data sheet**

Installation type/mounting

## 6ES7647-8BB61-6CA1

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 N2930 (4C/4T) 8 GB with NVRAM Box: Basis without COM Windows 7 Ultimate SP1, 64 bit; MUI (de, en, fr, es, it) 240 GB SSD; 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  |  |  |
| <ul> <li>Mains/voltage failure stored energy time</li> </ul>     | 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)  |  |
| <ul> <li>Number of PCI slots</li> </ul>                          | 1; Optional  |  |
| <ul> <li>Number of compact flash slots</li> </ul>                | 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  |  |  |
| <ul> <li>Industrial Ethernet interface</li> </ul>                | 2x Ethernet (RJ45)   |  |
| — 100 Mbps   | Yes  |  |
| — 1000 Mbps  | Yes  |  |
| Integrated Functions   |  |  |
| Monitoring functions   |  |  |
| <ul> <li>Temperature monitoring</li> </ul>                       | Yes  |  |
| <ul><li>Watchdog</li></ul>                                       | 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 fie | lds  |  |

| 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 | <ul> <li>Interference immunity on signal cables &gt;30m</li> </ul>  | ±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   | <ul> <li>Interference immunity on signal cables &lt; 30m</li> </ul> | ±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 | <ul> <li>asymmetric interference</li> </ul>                         | ±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 teating  • 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  **Chindrous Simple (Coreaning System)  Pre-installed operating system  Pre-installed operating system  Vibrous Operating system  Vibrous Operating system  Vibrous Operating system  Vies Optional  | 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  Pre-installed operating system  Vibrodors  Vibrodors  Vibrodors  Final May Standard Ship, MU, Windows Embedded Standard 7 E/P, 32-bit /84-bit (Industrial OS)  without operating system  Vibrodors  Final May Standard Ship, MU, Windows Embedded Standard 7 E/P, 32-bit /84-bit (Industrial OS)  without operating system  Vibrodors  Final May Standard Ship, MU, Windows Embedded Standard 7 E/P, 32-bit /84-bit (Industrial OS)  without operating system  Vibrodors  Final May Standard Ship, MU, Windows Embedded Standard 7 E/P, 32-bit /84-bit (Industrial OS)  without operating system  Vibrodors  Final Multi Mindows Final Multi Windows Embedded Standard 7 E/P, 32-bit /84-bit (Industrial OS)  without operating system  Vibrodors  Vibrodors  Windows Final May Final Multi Windows Embedded Standard 7 E/P, 32-bit /84-bit (Industrial OS)  without operating system  Ves Optional  | 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  **Jordan Systems  **Jordan Systems  **Jordan Systems  **Jordan SimATIC Industrial OS  without operating system  yes: Optional  **Jordan SimATIC Industrial OS  without operating system  yes: Optional  | 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 Isesting • 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/P, 32-bit / 64-b | • 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 sure auditionustration options is MADIENT and sure auditionus in monoperating system  Without operating system  Ves; Optional   | 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   | <ul> <li>Germanischer Lloyd (GL)</li> </ul>                         | 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   | <ul> <li>American Bureau of Shipping (ABS)</li> </ul>               | 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  | <ul> <li>Det Norske Veritas (DNV)</li> </ul>                        | Yes  |
| <ul> <li>Nippon Kaiji Kyokai (Class NK)</li> <li>Chinese Classification Society (CCS)</li> <li>Yes</li> <li>Ambient conditions</li> <li>Ambient temperature during operation</li> <li>min.</li> <li>max.</li> <li>60 °C</li> <li>Ambient temperature during storage/transportation</li> <li>min.</li> <li>-20 °C</li> <li>Ambient temperature during storage/transportation</li> <li>min.</li> <li>-20 °C</li> <li>max.</li> <li>60 °C</li> <li>Relative humidity</li> <li>Relative humidity</li> <li>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)</li> <li>Vibrations</li> <li>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)</li> <li>Shock lesting</li> <li>Shock load during operation</li> <li>Tested according to IEC 60068-2-27: 150 m/s², 11 ms</li> <li>Operating systems</li> <li>Pre-installed operating system</li> <li>Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit</li> <li>Additional info on operating system</li> <li>Yes; Optional</li> </ul>  | <ul> <li>Korean Register of Shipping (KRS)</li> </ul>               | Yes  |
| Chinese Classification Society (CCS)  Ambient conditions  Ambient temperature during operation  ini. ini. ini. ini. ini. ini. ini.   | <ul> <li>Lloyds Register of Shipping (LRS)</li> </ul>               | 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  | <ul> <li>Nippon Kaiji Kyokai (Class NK)</li> </ul>                  | 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  |
| <ul> <li>min.</li> <li>max.</li> <li>60 °C</li> <li>Ambient temperature during storage/transportation</li> <li>min.</li> <li>-20 °C</li> <li>max.</li> <li>60 °C</li> <li>Relative humidity</li> <li>Relative humidity</li> <li>Relative humidity</li> <li>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)</li> <li>Vibrations</li> <li>Vibration resistance during operation acc. to IEC 60068-2-6</li> <li>Shock testing</li> <li>Shock load during operation</li> <li>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)</li> <li>Shock load during operation</li> <li>Tested according to IEC 60068-2-27: 150 m/s², 11 ms</li> <li>Operating systems</li> <li>Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit</li> <li>Additional info on operating system</li> <li>Ves; Optional</li> </ul>   | Ambient conditions  |  |
| <ul> <li>max.</li> <li>Ambient temperature during storage/transportation</li> <li>min.</li> <li>-20 °C</li> <li>60 °C</li> <li>Relative humidity</li> <li>Relative humidity</li> <li>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)</li> <li>Vibrations</li> <li>Vibration resistance during operation acc. to IEC 60068-2-6</li> <li>2-6</li> <li>Shock testing</li> <li>Shock load during operation</li> <li>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)</li> <li>Shock load during operation</li> <li>Tested according to IEC 60068-2-27: 150 m/s², 11 ms</li> <li>Operating systems</li> <li>Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit</li> <li>Additional info on operating system</li> <li>Yes; Optional</li> </ul>  | 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   |
| <ul> <li>min.</li> <li>-20 °C</li> <li>60 °C</li> <li>Relative humidity</li> <li>Relative humidity</li> <li>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)</li> <li>Vibrations</li> <li>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)</li> <li>Shock testing</li> <li>Shock load during operation</li> <li>Tested according to IEC 60068-2-27: 150 m/s², 11 ms</li> <li>Operating systems</li> <li>Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit</li> <li>Additional info on operating system</li> <li>yes; Optional</li> </ul>  | ● max.  | 60 °C  |
| <ul> <li>● max.</li> <li>Relative humidity</li> <li>■ Relative humidity</li> <li>■ Relative humidity</li> <li>■ 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)</li> <li>Vibrations</li> <li>■ Vibration resistance during operation acc. to IEC 60068-2-6</li> <li>■ Shock testing</li> <li>■ Shock load during operation</li> <li>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)</li> <li>Shock load during operation</li> <li>Tested according to IEC 60068-2-27: 150 m/s², 11 ms</li> <li>Operating systems</li> <li>Pre-installed operating system</li> <li>Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit</li> <li>Additional info on operating system</li> <li>Optional: SIMATIC Industrial OS</li> <li>Yes; Optional</li> </ul>   | 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                                      |  |

| <ul><li>Windows 7</li><li>Windows 10</li><li>Windows 10 Enterprise</li></ul> | Yes; Ultimate 32 bit or 64 bit Yes; Windows 10 IoT Enterprise 2016 LTSB, 64bit, MUI 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   |

last modified: 6/25/2021 🖸