## **SIEMENS**

## **Data sheet**

## 6ES7647-8BB52-2CA1

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) 4 GB with NVRAM Box: Basis with COM 1/2 WIN Embedded Standard 7E SP1, English; 64 bit 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 PCIe (x1) (optional)
<ul> <li>Number of PCI slots</li> </ul>	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
<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	
<ul> <li>Interference immunity against discharge of static electricity</li> </ul>	±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 fi	
incherence initiality against high-frequency electromagnetic ti	

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 in signal cables > 30m  Interference immunity in signal cables > 30m  Interference immunity in originate fields  Interference immunity in signal cables > 30m  Interference immunity in originate fields  Interference immunity in originate fields originate fields	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.2-bit (7-64-bit)  Operating systems  pre-installed operating system  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, Multi-Windows Embedded Standard 7 E/P, 32-bit / 64-bit operating system	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  Finance of the pressure of the press	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  **Arbition resistance during operation occ. 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 lead 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 leating  **Shock leating 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)  **Mindows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit in dustrial OS  without operating system  **Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit in dustrial OS  without operating system  **Windows Findal Findal Standard Operating operation operating system  **Windows Findal	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 sure auditionustration options is MADIENT and sure auditionus in monoperating system  Without operating system  Visionus Operating system  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-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-b	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>Windows 7 Ultimate 32-bit / 64-bit, MUI; Windows Embedded Standard 7 E/P, 32-bit / 64-bit</li> <li>Optional: SIMATIC Industrial OS</li> <li>without operating system</li> <li>Yes; Optional</li> </ul>	Ambient conditions	
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<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
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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	
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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	Ÿ	
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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></ul>	Yes; Ultimate 32 bit or 64 bit 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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