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## Data sheet 6ES7647-8BB21-7CA1

| | |
|---|---|
| | 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 RAM; Box: Basis without COM Windows 10 IoT Enterprise LTSB 2016, 64 bit, MUI (en, de, fr, it, es) 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 | |
| ● 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 |
| **Storage** | |
| 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 | |
| ● 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 |
| 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 |
| ● 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 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 V/m for 2 - 2.7 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz - 80 MHz, 80% AM acc. to IEC 61000-4-6 |


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|---|---|
| Interference immunity to cable-borne interference | |
| ● Interference immunity on supply cables | ±2 kV acc. to IEC 61000-4-4, burst; ±1 kV acc. to IEC 61000-4-5, surge symmetric; ±2 kV acc. to IEC 61000-4-5, surge asymmetric |
| ● Interference immunity on signal cables >30m | ±2 kV acc. to IEC 61000-4-5, surge, length > 30 m |
| ● 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; burst; length > 3 m |
| Interference immunity against voltage surge | |
| ● asymmetric interference | ±2 kV acc. to IEC 61000-4-5, surge asymmetric |
| ● symmetric interference | ±1 kV acc. to IEC 61000-4-5, surge symmetric |
| Interference immunity to magnetic fields | |
| ● Interference immunity to magnetic fields at 50 Hz | 100 A/m; to IEC 61000-4-8 |
| 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 | IP40 |
| **Standards, approvals, certificates** | |
| CE mark | Yes |
| UL approval | Yes |
| ● UL 508 | Yes |
| cULus | Yes |
| RCM (formerly C-TICK) | Yes |
| KC approval | 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 | Yes; Optional |
| ● IECEx Zone 2 | Yes; Optional |
| ● cULus Class I Zone 2, Division 2 | Yes; Optional |
| Marine approval | |
| ● Germanischer Lloyd (GL) | Yes |
| ● American Bureau of Shipping (ABS) | Yes |
| ● Bureau Veritas (BV) | Yes |
| ● Det Norske Veritas (DNV) | Yes |
| ● Korean Register of Shipping (KRS) | Yes |
| ● Lloyds Register of Shipping (LRS) | Yes |
| ● Nippon Kaiji Kyokai (Class NK) | Yes |
| ● Chinese Classification Society (CCS) | Yes |
| **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 | 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 | 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 | optional: SIMATIC Industrial OS |
| without operating system | Yes; Optional |
| pre-installed operating system | |


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|---|---|
| • 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 |

## Dimensions

| | |
|---|---|
| Width | 191 mm |
| Height | 100 mm |
| Depth | 60 mm |

## Classifications

| | Version | Classification |
|---|---|---|
| eClass | 16 | 19-20-01-02 |
| eClass | 14 | 19-20-01-02 |
| eClass | 12 | 19-20-01-02 |
| eClass | 9.1 | 19-20-01-02 |
| eClass | 9 | 19-20-01-02 |
| eClass | 8 | 19-20-01-02 |
| eClass | 7.1 | 19-20-01-02 |
| eClass | 6 | 19-20-01-02 |
| ETIM | 10 | EC001413 |
| ETIM | 9 | EC001413 |
| ETIM | 8 | EC001413 |
| ETIM | 7 | EC001413 |

## Approvals / Certificates

### General Product Approval

Miscellaneous | Declaration of Conformity | Manufacturer Declaration

### General Product Approval

BIS CRS | China RoHS

### General Product Approval | For use in hazardous locations | Maritime application

Miscellaneous

### Maritime application

NK / Nippon Kaiji Kyokai | CCS (China Classification Society) | KR (Korean Register of Shipping)

### Dangerous goods | Environment

Test Summary Report UN 38.3 | Dangerous goods information | Dangerous goods information | Test Summary Report UN 38.3 | Environmental Confirmations | Environmental Confirmations


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