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## Data sheet 6AG4112-3CS12-2AX2

| | |
|---|---|
| | SIMATIC IPC647E (Rack PC, 19", 2U); 3x Gbit Ethernet (IE/PN), RJ45; 1x DVI-D, 2x displayport, 1x COM1, audio, 4x USB 3.1, 2x USB 3.1 (Typ C) rear side; 2x USB 3.0 front, 1x USB3.1 internally; 1x M.2 Slot internally; temperature and fan monitoring, watchdog; card retainer; Core i3-8100 (4C/4T, 3.6 GHz, 6 MB cache, VT-d); Board 4 slots: 2x PCIe x16 (8 L), 1x PCIe x16 (4 L), 1x PCIe x16 (1 L); 2x 480 GB SSD 2.5" SATA; Enclosure with drive support Type A (for rack units on the front); 100/240 V AC industrial power supply unit; 16 GB DDR4 SDRAM (2x 8 GB), Dual Channel; PCIe x16 graphics card (3x mDP: 3x adapter mDP to DP) (1 slot occupied); Windows10 Enterprise 2016 LTSB, MUI (de, en, fr, it, es), 64-bit (for Core i3/i5); Without expansions; Power supply cable USA |
| **Installation type/mounting** | |
| Mounting | For horizontal installation; prepared for telescopic rails; 19" mounting bracket can be removed externally |
| Design | Rack PC, 19", 2U |
| **Supply voltage** | |
| Type of supply voltage | 100/240 V AC (autorange) 50 / 60 Hz; optional redundant 100/240 V AC |
| Line frequency | |
| ● Rated value 50 Hz | Yes |
| ● Rated value 60 Hz | Yes |
| Mains buffering | |
| ● Mains/voltage failure stored energy time | 20 ms |
| **Processor** | |
| Processor type | Intel Xeon E-2278GE (8C/16T, 3.3 (4.7) GHz, 16 MB Cache,Turbo Boost 2.0, VT-x/-d-Technology, iAMT); Intel Xeon E-2176G (6C/12T, 3.7 (4.7) GHz, 12 MB Cache,Turbo Boost 2.0, VT-x/-d-Technology, iAMT); Intel Core i7-8700 (6C/12T, 3.2 (4.6) GHz, 12 MB Cache,Turbo Boost 2.0, VT-x/-d-Technology, iAMT); Intel Core i5-8500 (6C/6T, 3.0 (4.1) GHz, 9 MB Cache,Turbo Boost 2.0, VT-x/-d-Technology, iAMT); Intel Core i3-8100 (4C/4T, 3.6 GHz, 6 MB Cache, VT-x/-d-Technology) |
| Chipset | Intel C246 |
| **Graphic** | |
| Graphics controller | Onboard Intel UHD graphics P630/630 integrated in processor; graphics card NVIDIA Quadro P400 PCIe (x16) triple head (optional) |
| **Drives** | |
| Hard disk | 1x 1 TB 3.5" SATA HDD, 2x 1 TB 3.5" SATA HDD, RAID1 2x 1 TB 3.5" SATA HDD, RAID1 2x 1 TB 3.5" SATA HDD (Enterprise), RAID1 2x 2 TB 3.5" SATA HDD (Enterprise), RAID1 2x 2 TB 3.5" SAS HDD (Enterprise) with PCIe x8 RAID controller incl. ZMCP module |
| SSD | Yes; 1x 480 GB 2.5" SATA SSD, 1x 960 GB 2.5" SATA SSD, 2x 480 GB 2.5" SATA SSD, RAID1 2x 480 GB 2.5" SATA SSD; 1x 512 GB M.2 NVMe SSD, 1x 1 024 GB M.2 NVMe SSD |
| Slot for drives | Mounting internally in vibration/shock-absorbing drive cage Type B or mounting on the front in removable trays (hot swap in RAID configurations) in drive cage Type A; mounting internally on the fixed drive cage optional |
| **Memory** | |
| Main memory | 4 GB to 128 GB DDR4 2666 SDRAM DIMM, ECC optional |
| Capacity of main memory, max. | 128 Gbyte |
| **Hardware configuration** | |
| Slots | |
| ● free slots | 2 slots: 1x PCI Express (x16) (16 lanes), 1x PCI Express (x16) (4 lanes) or 4 slots: 2x PCI, 2x PCI Express (x16) (8 lanes) or 4 slots: 2x PCI Express (x16) (8 lanes), 1x PCI Express (x16) (4 lanes), 1x PCI Express (x16) (1 lane); expansion modules up to 312 mm in length can be used |
| **Interfaces** | |
| Interfaces/bus type | 1x COM1, 1x COM2 (optional), 2x DisplayPort, 1x DVI-D, audio (microphone in, line in, line out), 9x USB, 3x Gigabit Ethernet |
| PROFIBUS/MPI | can be implemented with plug-in card |
| USB port | 4x USB 3.1 Gen. 2 Type A, 2x USB 3.1 Gen. 2 Type C on the rear; 1x USB 3.1 Gen. 2 Type A internally, e.g. for software dongle with optional interlock, 2x USB 3.1 Gen. 1 Type A on the front, can be used with door closed |
| Connection for keyboard/mouse | USB |


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| Multimedia | |
| ● Audio In/Out | Yes |
| ● Microphone In | Yes |
| Video interfaces | |
| ● Graphics interface | 2x DisplayPort and 1x DVI-D onboard; 1x VGA via DP-VGA adapter cable (optional); graphics card PCIe (x16), Triple Head (3x mini DisplayPort, 2 GB graphics memory, 3x mini DisplayPort to DisplayPort adapter cable) (optional) |
| Industrial Ethernet | |
| ● Industrial Ethernet interface | 3x Gigabit Ethernet (IE/PN), RJ45 |
| — 100 Mbps | Yes |
| — 1000 Mbps | Yes |
| **Integrated Functions** | |
| Monitoring functions | |
| ● Temperature monitoring | Yes |
| ● Watchdog | Yes |
| ● Fan | Yes |
| ● 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 ... 2 700 MHz, 80% AM acc. to IEC 61000-4-3; 3 V/m for 2.7 to 6 GHz, 80% AM acc. to IEC 61000-4-3; 10 V for 10 kHz to 80 MHz, 80% AM acc. to IEC 61000-4-6 |
| 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 |
| 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, CAN/CSA CISPR 22 Class B, EN 55032 Class B; FCC Class A; KN32 Class B, EN 61000-3-2 Class D; EN 61000-3-3 |
| **Degree and class of protection** | |
| IP (at the front) | IP41 |
| IP (rear) | IP20 |
| **Standards, approvals, certificates** | |
| CE mark | Yes; For use in industrial areas as well as domestic, business and commercial environments (emitted interference: EN 61000-6-3:2007 +A1:2011, noise immunity: EN 61000-6-2:2005) |
| CSA approval | Yes; CAN/CSA-C22.2 No. 61010-2-201 Second Edition |
| UL approval | Yes; UL 61010-2-201 Second Edition, File E85972 |
| cULus | Yes; UL 61010-2-201 Second Edition; CAN/CSA-C22.2 No. 61010-2-201 Second Edition |
| RCM (formerly C-TICK) | Yes |
| KC approval | Yes |
| EAC (formerly Gost-R) | Yes |
| EMC | EN 61000-6-3; EN 61000-6-4, CAN/CSA CISPR 22 Class B, EN 55032 Class B; FCC Class A; KN32 Class B, EN 61000-3-2 Class D; EN 61000-3-3 |
| Dust protection | With front door closed: G2 EN 779, 99% of particles > 0.5 mm are filtered |
| **Ambient conditions** | |
| Ambient temperature during operation | |
| ● min. | 0 °C; Max. 10 °C/h (no condensation) |
| ● max. | 50 °C |
| Ambient temperature during storage/transportation | |
| ● min. | -20 °C; Max. 20 °C/h (no condensation) |
| ● max. | 60 °C |
| Relative humidity | |
| ● Relative humidity | Tested according to IEC 60068-2-78, IEC 60068-2-30: Operation: 5 % to 85 % |


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|---|---|
| | 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 according to IEC 60068-2-6: 10 cycles, 10 Hz to 58 Hz: 0.0375 mm, 58 Hz to 500 Hz: 4.9 m/s² (0.5 g) |
| Shock testing | |
| ● Shock load during operation | Tested according to DIN IEC 60068-2-7: 50 m/s2 (5 g), 30 ms, 100 shocks |
| **Operating systems** | |
| pre-installed operating system | Windows 10 Enterprise 2016 LTSB, multi-language (64-bit); Windows 10 IoT Enterprise 2019 LTSC, multi-language (64-bit); Windows Server 2016 Standard Edition incl. 5 multi-language clients (64-bit); Windows Server 2019 Standard Edition incl. 5 multi-language clients (64-bit) |
| Additional info on operating system | Multi-Language User Interface (MUI): 5 languages (English, German, French, Spanish, Italian) |
| without operating system | Yes |
| **Software** | |
| SIMATIC Software | Optional package with SIMATIC WinCC |
| **Dimensions** | |
| Width | 430 mm |
| Height | 88 mm; 2U |
| Depth | 444 mm |

**Classifications**

| | Version | Classification |
|---|---|---|
| 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 | 9 | EC001413 |
| ETIM | 8 | EC001413 |
| ETIM | 7 | EC001413 |

**Approvals / Certificates**

**General Product Approval**

CE EG-Konf. | UKCA | Manufacturer Declaration | UL | KC | RCM

| General Product Approval | Marine / Shipping | | | | Dangerous goods |
|---|---|---|---|---|---|
| BIS CRS | ABS | BUREAU VERITAS | DNV | LRS | Dangerous goods information |

**Environment**

Environmental Confirmations

**last modified:** 1/31/2021


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