

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 i5-8500 (6C/6T, 3.0 (4.1) GHz, 9 MB cache, TB, VT-D, AMT); Board 4 slots: 2x PCI, 2x PCIe x16 (8 L); RAID1, 2x 1 TB HDD (Enterprise) 3.5" SATA; Enclosure with drive support Type A (for rack units on the front); 2x 100/240V AC redundant industrial power supply unit; 16 GB DDR4 SDRAM (2x 8 GB), Dual Channel; 512 GB SSD M.2 NVMe (M.2 slot occupied); (for operating system); Windows 10 IoT Enterprise 2019 LTSC MUI (de, en, fr, it, es), 64-bit (for Core i3/i5); SIMATIC PC Image&Partition Creator software enclosed; Power supply cable Europe

| 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                                                                                                                                                                                                                             |
| serial interface                                                                | COM1: 1x RS 232, COM2 (optional): 1x RS 232                                                                                                                                                                                     |
| Multimedia                                                                      |                                                                                                                                                                                                                                 |
| • Audio In/Out                                                                  | Yes                                                                                                                                                                                                                             |
| • Microphone In                                                                 | Yes                                                                                                                                                                                                                             |
| <b>Video interfaces</b>                                                         |                                                                                                                                                                                                                                 |
| • 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) |
| <b>Industrial Ethernet</b>                                                      |                                                                                                                                                                                                                                 |
| • Industrial Ethernet interface                                                 | 3x Gigabit Ethernet (IE/PN), RJ45                                                                                                                                                                                               |
| — 100 Mbps                                                                      | Yes                                                                                                                                                                                                                             |
| — 1000 Mbps                                                                     | Yes                                                                                                                                                                                                                             |
| <b>Integrated Functions</b>                                                     |                                                                                                                                                                                                                                 |
| <b>Monitoring functions</b>                                                     |                                                                                                                                                                                                                                 |
| • Temperature monitoring                                                        | Yes                                                                                                                                                                                                                             |
| • Watchdog                                                                      | Yes                                                                                                                                                                                                                             |
| • Status LEDs                                                                   | Power, HDD, Ethernet 1, Ethernet 2, Ethernet 3, Watchdog, Temp, Fan, HDD1 alarm, HDD0 alarm                                                                                                                                     |
| • Fan                                                                           | Yes                                                                                                                                                                                                                             |
| • Monitoring function via network                                               | Optional                                                                                                                                                                                                                        |
| <b>EMC</b>                                                                      |                                                                                                                                                                                                                                 |
| <b>Interference immunity against discharge of static electricity</b>            |                                                                                                                                                                                                                                 |
| • 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                                                                                                                                        |
| <b>Interference immunity against high-frequency electromagnetic fields</b>      |                                                                                                                                                                                                                                 |
| • 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                                                        |
| <b>Interference immunity to cable-borne interference</b>                        |                                                                                                                                                                                                                                 |
| • 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                                                                                                                                                                                |
| <b>Interference immunity against voltage surge</b>                              |                                                                                                                                                                                                                                 |
| • asymmetric interference                                                       | ±2 kV acc. to IEC 61000-4-5, surge asymmetric                                                                                                                                                                                   |
| • symmetric interference                                                        | ±1 kV acc. to IEC 61000-4-5, surge symmetric                                                                                                                                                                                    |
| <b>Interference immunity to magnetic fields</b>                                 |                                                                                                                                                                                                                                 |
| • Interference immunity to magnetic fields at 50 Hz                             | 100 A/m; to IEC 61000-4-8                                                                                                                                                                                                       |
| <b>Emission of conducted and non-conducted interference</b>                     |                                                                                                                                                                                                                                 |
| • 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                                                                                           |
| <b>Compliance with line harmonic distortion limits</b>                          |                                                                                                                                                                                                                                 |
| • Compliance with line harmonic distortion acc. to IEC 61000-3-2, IEC 61000-3-3 | Yes; EN 61000-3-2 Class D; EN 61000-3-3                                                                                                                                                                                         |
| <b>Degree and class of protection</b>                                           |                                                                                                                                                                                                                                 |
| IP (at the front)                                                               | IP41                                                                                                                                                                                                                            |
| IP (rear)                                                                       | IP20                                                                                                                                                                                                                            |
| <b>Standards, approvals, certificates</b>                                       |                                                                                                                                                                                                                                 |
| 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                                                                                                                                                |

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|---------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                                                                                                                          |
| <b>Marine approval</b>                                        |                                                                                                                                                                                                                                                                                    |
| • Germanischer Lloyd (GL)                                     | Yes; Only with SSD                                                                                                                                                                                                                                                                 |
| • American Bureau of Shipping (ABS)                           | Yes; Only with SSD                                                                                                                                                                                                                                                                 |
| <b>Ambient conditions</b>                                     |                                                                                                                                                                                                                                                                                    |
| <b>Ambient temperature during operation</b>                   |                                                                                                                                                                                                                                                                                    |
| • Ambient temperature during operation                        | 0 °C to +50 °C with full configuration                                                                                                                                                                                                                                             |
| <b>Ambient temperature during storage/transportation</b>      |                                                                                                                                                                                                                                                                                    |
| • min.                                                        | -20 °C; Max. 20 °C/h (no condensation)                                                                                                                                                                                                                                             |
| • max.                                                        | 60 °C                                                                                                                                                                                                                                                                              |
| <b>Relative humidity</b>                                      |                                                                                                                                                                                                                                                                                    |
| • 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)                                                                                                            |
| <b>Vibrations</b>                                             |                                                                                                                                                                                                                                                                                    |
| • 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/s <sup>2</sup> (0.5 g)                                                                                                                                                             |
| <b>Shock testing</b>                                          |                                                                                                                                                                                                                                                                                    |
| • Shock load during operation                                 | Tested according to DIN IEC 60068-2-7: 50 m/s <sup>2</sup> (5 g), 30 ms, 100 shocks                                                                                                                                                                                                |
| <b>Operating systems</b>                                      |                                                                                                                                                                                                                                                                                    |
| pre-installed operating system                                | Windows 10 Enterprise 2016 LTSC, 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                                                                                                                                                                                                                                                                                |
| <b>Software</b>                                               |                                                                                                                                                                                                                                                                                    |
| SIMATIC Software                                              | Optional package with SIMATIC WinCC                                                                                                                                                                                                                                                |
| <b>Dimensions</b>                                             |                                                                                                                                                                                                                                                                                    |
| Width                                                         | 430 mm                                                                                                                                                                                                                                                                             |
| Height                                                        | 88 mm; 2U                                                                                                                                                                                                                                                                          |
| Depth                                                         | 444 mm                                                                                                                                                                                                                                                                             |

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