



*Industrial PC*

## Spectra industrial-PC Systems

Instructions  
Version 1.5 - January 2023



## Thank you for buying a Spectra Industrial-PC

By purchasing this industrial PC system you have opted for a robust device tailored to industrial requirements.

### About

Spectra GmbH & Co. KG was founded in 1982 and has developed into a renowned supplier of products for industrial and industry-related computer applications in Germany.

Spectra's activities include trading in components for measurement and automation technology, industrial network technology and the development and manufacture of industrial PC systems.

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## 1. Notes

### 1.1 General notes

These instructions are intended for the safe handling of this product. It must be made available to the persons responsible for installation, commissioning, maintenance and disposal. Improper use of the product may result in damage or injury for which neither the manufacturer nor the distributor or dealer can be held liable. These instructions should be read and understood before any relevant work is carried out. The safety and application instructions must be observed.

In case of uncertainty, please contact our support.

This device complies with the current CE directive. The corresponding declaration of conformity can be obtained from [spectra@spectra.de](mailto:spectra@spectra.de)

### 1.2 Radio interferences

Unless otherwise defined in the technical data, this product is classified as „Class A“ ITE (Information Technology Equipment).

It can cause radio interference in residential areas. In this case, the operator may be required to take appropriate measures.

#### 1.2.1 Radio installation

The retrofitting of radio modules and plug-in cards with radio function invalidates the validity of the declaration of conformity.

If the 5GHz band is used, the device may only be operated in enclosed rooms.

When using the device outside Germany, the respective country-specific guidelines must be observed.

### 1.3 Product's information

The complete documentation includes, in addition to this general manual for IPCs, the specific data sheet.

You can see the individual, product-specific data from the data sheet. In these operating instructions, reference is made to the data sheet in several places. The data sheet also shows, for example, the installation conditions, IP protection class and permissible temperature range.

#### 1.3.1 Documentation about components

The information required for installation, operation, maintenance and service is provided either on a manual, DVD or as a download from our homepage, which is part of the scope of delivery.

This part is usually only available in English.

### 1.3.2 Device drivers

The drivers required for commissioning can also be downloaded from our homepage via the link to the corresponding manufacturer: [www.spectra.de](http://www.spectra.de). Further information can be found in the data sheet.

## 2. Safety Instructions

### 2.1 Intended use

This industrial PC system was manufactured for general industrial use. This includes e.g. Industrial image processing, quality assurance and monitoring, measurement and control technology, data acquisition and evaluation.

This Industrial PC may only be operated in closed rooms. Storage within the specified temperature and humidity ranges must be ensured.

Do not operate the device in locations with corrosive vapors or gases.

It has not been developed and manufactured for use in applications which pose a serious risk to life and health and therefore place the highest demands on safety, such as the control of nuclear reactions in nuclear power plants, automatic control of aircraft, air traffic control, control of processes in mass transport systems, medical equipment for life support and all cases in which safety cannot be guaranteed.

### 2.2 Damages through unsuitable use

If the device or accessories show obvious damage, e.g. caused by improper transport, storage or handling, the device must be taken out of operation immediately and secured against inadvertent commissioning.

### 2.3 Symbols

**Attention !**

Non-observance may result in damage to health.

**Beware of current!**

Dangerous body currents can flow when touched.

**Note!**

Information on ESD endangered components. Additional protective measures required.

## 2.4 Safety notes



### Electricity hazard

Never open the power supply cover. The power supply fan is not intended for maintenance.

If the fan is defective, replace the power supply unit.

Only use power supplies and supply lines with protective conductor connection.

To avoid damage or malfunctions due to condensation, the unit must be brought to room temperature slowly after transport and before commissioning. See data sheet.



### Explosion hazard

Lithium batteries can explode if handled improperly.

The released pollutants can lead to bodily injuries.

Therefore, be careful:

Do not throw batteries into fire, do not heat them above 100°C, do not reverse polarity, do not recharge, do not open or short-circuit them.

Protect the battery from direct sunlight, moisture and condensation.

Replace the lithium battery in a timely manner.

Replace the lithium battery with identical types only.



### Danger of overheating

To safely disconnect the device from the power supply in the event of a malfunction, the mains cable must be accessible in order to disconnect the device from the mains supply.

## 2.5 Notes about chassis

It is not permitted to open the housing while the product is in use.

Do not insert any objects into the housing or the housing openings that are not intended for this purpose, otherwise there is a danger of electric shocks, short circuits, injuries or fires.

## 3. Before use

### 3.1 Transport & storage

Please check the packaging for possible transport damage. Check the accessories.

Observe the transport and storage conditions described in the data sheet and ensure that they are observed. Before commissioning, the device must be accustomed to the ambient conditions for at least two hours. Store the device in a dry room. Make sure that the storage temperature is as low as possible. Protect the device from direct sunlight.

#### 3.1.1 Lithium battery

The industrial PC contains only one or two button cells with a lithium content <1g and a nominal energy <20 Wh. This means that special regulation 188 of UN3090 / UN3091 is given, since no special documents or inscriptions are required for transport.

## 3.2 Installation & mounting

### 3.2.1 Location & mounting position

Place the unit on a non-slip flat surface in accordance with the installation position defined in the data sheet.

Unless otherwise expressly stated in the data sheet, the unit must not be placed on inclined surfaces and must be protected against vibrations. Depending on the condition of the surface and the plastic materials of the feet, damage may be caused by imprints.

Make sure that any ventilation openings are not covered. Leave sufficient space around the unit to walls and covers so as not to obstruct the necessary air circulation. Failure to do so may result in overheating. Take care not to place the device in the immediate vicinity of heat sources or direct sunlight or strong light sources. The maximum permissible ambient temperature must not be exceeded.

Unless otherwise stated in the data sheet of the IPC, the following ambient conditions apply:

Temperature range: +5 °C to +35 °C

Relative humidity: 10 % to 80 %.

Air pressure: 700 to 1100 hPa and 2000 m

Use the supplied accessories.

The unit is not protected against moisture penetration. Protect the device from splashing water.

Ensure that the environment is as dust-free as possible. When installing the unit, take into account the possible contamination. Depending on the degree of soiling, maintenance cycles must be provided for cleaning the air filters and fans.

Avoid mechanical distortion when installing the product.

Make sure that the cables and connectors are securely connected to prevent them from coming loose on their own.

## 3.2.2 Rack-mount

When installing the IPC in a closed rack unit, the following conditions must be taken into account compared to a free-standing structure:

The temperature can be significantly higher due to the enclosed air volume and the additional internals. The air flow could be reduced.

Depending on the direction and performance, fans of the surrounding devices can impair the air flow of the Industrial PC.

## 3.2.3 Power supply



Only use mains supply cables that are sufficiently dimensioned and approved for the specified rated current. Please refer to the nameplate and data sheet.

The power supply must be protected with an overcurrent fuse of max. 16 A. The mains plug must be connected to the mains. The mains plug must be easily accessible at all times.

Only use power supplies and supply cables with a protective conductor connection.

Use the supplied accessories. Do not open, modify or repair the power supply unit or its cables.

Operate the device only within the permissible voltage range. Ensure that the polarity is correct.

Disconnecting the device from the power supply when it is switched on can cause damage to the device.

When installing the device in other products, avoid ground loops to prevent damage to the device.

## 3.3 Commissioning

The use of the product requires specialist knowledge. Ensure that the product is only operated by qualified personnel or appropriately trained personnel.

The power plug serves as a disconnect point for the power supply and should be freely accessible so that the IPC can be disconnected from the circuit in the event of a risk of electric shock or fire.

To install additional plug-in cards, memory expansions or other hardware, pull out the mains plug before opening the IPC.

After interrupting the power supply, wait at least 20 seconds until the residual voltages have discharged.

20 seconds must elapse between switching off and switching on, so that any residual charge does not prevent the unit from being switched on again.

The ON button on the front does not switch off the power to the IPC!



When the housing is open, the components are no longer protected against ESD.

When touching, it is essential to take suitable measures (grounding, antistatic) to prevent electrostatic discharges on the components.

Store electrostatically sensitive parts in appropriate protective packaging or on antistatic mats.



### 3.4 Fixtures

According to the specification, one PCI slot may be loaded with a maximum of 10 watts, one PCIe-express slot with 25 watts and one PCIe x16/PEG slot for graphics cards with 75 watts. Additional power consumption may only be made with additional connections to the power supply unit. Further details can be found in the technical documentation of the components.

Plug-in cards, especially graphics cards, lead to increased power consumption. This must be considered thermally accordingly. In addition, the ventilation conditions and permissible operating temperatures of the components must be observed.

Additional components must be mounted and fixed in such a way that no damage can occur to the device during transport.

EMC interference can be caused by the installation of additional components. Ensuring CE conformity is the responsibility of the person making this change to the device.

Always use high-quality, shielded connection cables.

If you are not sure or if the additional installations increase the total performance of the IPC by more than 20%, please contact our support: [www.spectra.de/contact](http://www.spectra.de/contact)

#### 3.4.1 Use in vehicles

When used in vehicles, it must be ensured that the fuse corresponds to the connected load of the product.

If the regulations of the Road Traffic Licensing Regulations are relevant when using the IPC system, then you need an E-approval.

### 3.5 Connectors

If the connection is not a Plug & Play connection, the device must be connected without power.

Shielded cables should be well screwed, if intended.

Connected peripheral devices must not carry a counter voltage greater than 0.5 Volt as external voltage on the device.

## 4. During use

### 4.1 BIOS settings

If you have purchased the device without an operating system, you may need to make settings in the BIOS to adjust the boot sequence, RAID system UEFI mode, etc.

For devices with a pre-installed operating system, appropriate basic settings have already been made. To enter the BIOS, press the DEL or F2 key during the boot process, depending on the mainboard manufacturer.

Information about the BIOS settings can be found in the manual of the mainboard.

### 4.2 BIOS update

A BIOS update is usually not necessary. BIOS updates should only be performed if there are problems with the hardware. Make a note of the previously set values, as these may contain deviations from the mainboard default values.

After the BIOS update, load the default values and then re-enter the previously noted adjustments.

### 4.3 Operating system

Depending on the requested configuration, the device is delivered with the operating system installed. The operating system contains the required device drivers, updates and patches that are available at the time of installation.

If you purchased the device with the operating system installed, you will find the required device drivers on the driver DVD or on the manufacturer's homepage.

Additional information can be found on the data sheet of your device.

### 4.4 Operation

This industrial PC is designed for continuous operation. However, permanent use in extreme ambient conditions leads to a corresponding reduction in the service life of the product.

### 4.5 Cleaning

Clean the device when it is switched off. Do not use any liquids or cleaning sprays for this purpose. It is best to carry out the cleaning with a damp cloth.

Check and clean the condition of the air filters and ventilation grilles at regular intervals to prevent the IPC from overheating.

Any consequential damage caused by clogged filters or excessively dirty equipment is excluded from the warranty.

#### 4.5.1 LCD screens and touchscreens

It is recommended to use a cleaning agent specially designed for LCD screens. Do not use cleaners containing alcohol or acetone.

Always use a cloth for cleaning. Never spray the cleaning liquid directly onto the device to prevent the liquid from penetrating.

Do not use sharp or pointed objects when operating the touch screen.

Storage on the screen side can cause irreparable damage.

### 4.6 Maintenance



In principle, it should be noted that in products with an uninterruptible power supply, the components in the product may still be running even after disconnection from the mains. The product must be checked for voltage before maintenance work is carried out.

#### 4.6.1 CMOS battery

The CMOS battery should be replaced every 5 years. If the battery is not changed, it may become too hot. Changes to the BIOS settings are coming. In addition, the date and time are no longer displayed correctly.

When changing the BIOS, make sure that an equivalent type is used.

Make a note of the BIOS settings before changing. The configuration data are deleted by the change and must be reset.

Observe the safety and disposal instructions.

#### 4.6.2 Chassis' fan

Housing fans are subject to wear. The service life depends on the type, degree of contamination and Temperature very different. Therefore we recommend, depending on the application, a preventive replacement according to 3 - 5 years.

If filter mats are present, regular cleaning must be carried out.

#### 4.6.3 Drives

Hard disks are also subject to wear and tear. Depending on use, we recommend replacement after 3 years.

The lifetime of SSD drives depends on the write and erase cycles performed.

The remaining service life can be predicted using suitable diagnostic tools from the SSD manufacturer.

### 4.7 Replacing parts

Repairs may only be carried out by qualified personnel.

## 5. After use

### 5.1 Disassembly

If possible, separate metal and electronic components for disposal.

If possible, remove the CMOS battery.

If a UPS is installed in your product, refer to the supplied manufacturer's documents for storage, transportation, and disposal instructions.

### 5.2 Disposal

Electrical appliances must not be disposed of in residual waste bins or other waste containers!

Used batteries must be disposed of in accordance with local regulations.

Since the applicable regulations are subject to change, please observe the requirements of the Electrical Equipment Act at the time of disposal or the regulations of the regional disposal companies.

## 6. Gewährleistungsbedingungen

### 6.1 Warranty

During the warranty period, repairs may only be carried out by the manufacturer or by persons authorized by him. The warranty expires if defects are caused by the installation or modification of system extensions.

No liability is accepted for functional limitations when using third-party components.

No liability is assumed for damage caused by incorrect or improper use and application of the device.

Please observe our general warranty conditions in our General Terms and Conditions [www.spectra.de/GTC](http://www.spectra.de/GTC)

Spectra reserves the right to make technical changes to products and documentation without prior notice.

### 6.2 Repairs

#### 6.2.1 Purchase via a partner

If you have not purchased the device via Spectra GmbH & Co. KG but a partner, system integrator or as part of a system, customer-specific changes and configurations may have been made about which Spectra has no knowledge. If you need support, please contact your supplier directly.

#### 6.2.2 Registering a return

This product has been tested with the utmost care.

If, however, a service case should arise or if maintenance of the device is required, please fill in the form below.

[www.spectra.de/RMA](http://www.spectra.de/RMA) to fill out the form before returning the goods.

#### 6.2.3 Packaging

The sender is responsible for sufficient packaging. If possible, please use the original packaging for the return shipment.

Damage caused by improper packaging will void the warranty.

Transport damage due to defective packaging shall be borne by the sender.

**Please observe our packaging guidelines:**

**Protection against mechanical damage**

The packaging must adequately protect the device, module or accessories from mechanical damage during transport and storage. The packaging must be sufficiently padded for this purpose. If you are unsure, use an outer carton. If possible, mark the top of the carton.

**Electrostatic discharge**

Electronic components and assemblies that are not protected against ESD by a housing must be protected against electrostatic charging by antistatic foil.

**Moisture**

The packaging must provide adequate protection against moisture.

**Corrosion**

The unit should be packed in foil to prevent condensation when humidity is high.

**Temperature**

Please observe the storage and transport conditions of the device.

Please attach the completed RMA document to the outside of the package when returning the device.

**6.2.4 Backup of data carriers**

It may be necessary to perform a new installation as part of the repair.

You should therefore back up all important data on the data carriers before shipping.

If a chargeable data backup is required, this must be noted in advance on the RMA form.



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