

Box-PC 3

Installation Manual

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Table of contents

1	COPYRIGHT	3
2	TRADEMARK	3
3	DISCLAIMER	3
4	SAFETY	3
5	REVISIONHISTORY	4
6	NOTES ON CE MARKING	5
7	SCOPE OF DELIVERY	5
8	VIEW OF THE CONNECTION PAGE	6
9	COMMISSIONING	7
9.1	CHECKING MAIN VOLTAGE	7
9.2	INSTALLATION OF THE DEVICE	7
9.3	MAIN CONNECTION	8
9.4	ENVIRONMENT	8
9.5	COOLING	8
9.6	CONNECTING PERIPHERALS	9
9.6.1	<i>General information</i>	9
9.6.2	<i>Serial Interface</i>	9
9.6.3	<i>Ethernet</i>	9
9.6.4	<i>USB</i>	10
10	INSERTING THE CFAST CARD	10
11	CHANGING THE BATTERY	10
12	CHANGING FUSES	11
13	SPECIFICATIONS	11

1 Copyright

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2 Trademark


All product names and logos are trademarks or registered trademarks of their respective owners.

3 Disclaimer

The contents of this manual have been checked for conformity with the product described. Nevertheless, deviations cannot be ruled out, so that we do not assume any liability for complete conformity. However, the information in this manual is regularly reviewed. Necessary corrections are contained in the following editions. We are grateful for suggestions for improvement.

Janich & Klass Computertechnik GmbH assumes no liability whatsoever for defects caused directly or indirectly by errors in this manual, omission of information or by inconsistencies between the manual and the product.

4 Safety

- This device may not be used in any other way than as stated in this manual or in the associated technical description.
- Installation, commissioning and maintenance of this device may only be carried out by qualified personnel. This personnel must be familiar with the warnings and instructions in this manual.
- For the purposes of this manual, qualified personnel are persons who are familiar with the installation, installation, commissioning and operation of this equipment and who have the qualifications appropriate to their activities, such as:
 - Training and instruction or authorization to switch circuits and devices or systems on and off, to ground and to mark them in accordance with current standards of safety technology.
 - Training and instruction in accordance with the current standards of safety technology in the care and use of appropriate safety equipment.
 - First aid training.
- Before connecting this device to the mains voltage, you need to check that the voltage set on the device matches the mains voltage.
- The device must be properly  grounded via the terminal(s) marked with .
- If the device is mounted in a control cabinet door, it must also be properly grounded.
- The device may only be fixed in a control cabinet door using the mounting frame supplied.
- Before opening the appliance, the power plug must always be unplugged to ensure that the appliance is not energized. For devices with a hardwired power connection, the main switch of the parent device must be switched off.
- The device must be switched off before changing assemblies.

- The device contains electrostatically endangered components. Electrostatic discharges by the human body or similar must therefore be avoided at all costs, e.g. by using a grounded wristband. This is especially true before changing assemblies.
- Protect the device from moisture. Under no circumstances should objects or liquids get into the device.
- The ventilation holes in the side walls and in the lid must remain free at all times.
- Do not operate the appliance at higher temperatures than those indicated in the specifications.
- Unused cut-outs in the housing must always be closed with blank plates.
- Connected cables must not be subjected to tensile loads.
- In the event of a defective fuse, be sure to install a new one of the same type, otherwise there is a risk of fire.
- This device contains a lithium battery. **ATTENTION!** Risk of explosion in case of improper replacement of the battery. The battery may only be replaced with the same type or one recommended by Janich & Klass. Used batteries must be disposed of in accordance with the applicable legal provisions.
- If there is visible damage to the housing, please return the complete device to Janich & Klass for repair. (Any unauthorized repair may void the warranty.)
- Do not attempt to repair this device yourself. For any repairs, please contact Janich & Klass directly.
- Warranty repairs must be carried out directly by Janich & Klass.

5 Revisionhistory

Doku-ment-Revision	Date	Name	Changes / Explanations
1.0	09.10.2017	Pb	First version
1.1	14.08.2020	Ck	IP65 Front changed to IP20, addition maximum torque grounding bolt

6 Notes on CE marking

This device meets the protection requirements laid down in the Directives of Council of the European Community on the approximation of the laws of the Member States relating to electromagnetic compatibility (89/336/EEC and 93/97/EEC).



The Declaration of Conformity is kept available to the competent authorities in accordance with the above-mentioned guidelines for:

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Germany

This device meets the following requirements:

Stability:
Emission:
Grid harmonics:
Voltage fluctuations, flicker:

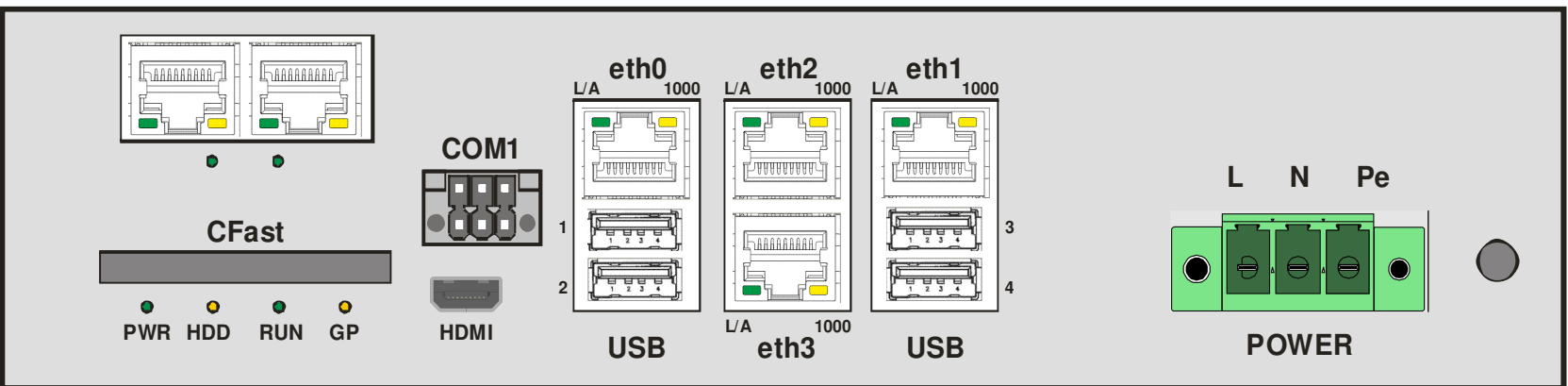
The device meets these requirements if you follow the assembly guidelines described in this manual during installation and operation.

7 Scope of delivery

The device comes with the following parts:

- Box PC in stainless steel housing for installation in control cabinets, tested and ready for use.
- Mat plug for mains connection socket.
- Mating plug for COM1 interface.
- Test protocols.

8 View of the connection page



9 Commissioning

9.1 Checking main voltage

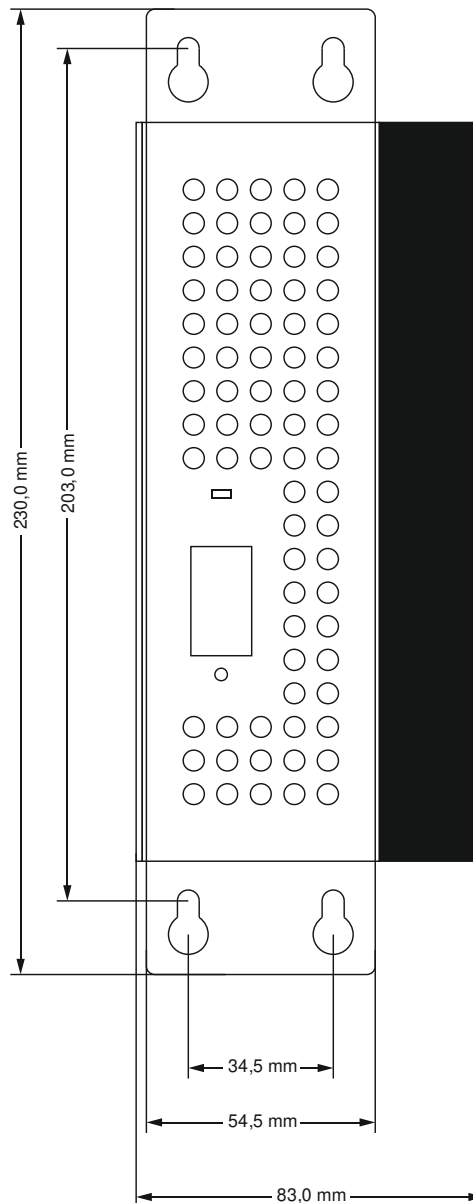
The main input voltage of the device must be

AC 230V 50Hz Current consumption max. 0.8A

ATTENTION! Under no circumstances should the device be operated with mains voltages other than those specified above!

9.2 Installation of the device

The device is attached to the mounting plate using 4 M5 screws. The following drawing shows the necessary dimensions:



The device may only be installed in a vertical position, with the connection side at the bottom.

9.3 Main connection

Once the mains voltage has been checked, the device must be connected to the mains via the Phoenix Combicon plug marked 'POWER'. The protective conductor on 'PE' must not be omitted. In addition, the device must be grounded via the additional 6mm threaded bolt with a short 10mm² cable. The grounding bolt may be loaded with a maximum torque of 3.8Nm. The mounting plate itself must be very well grounded.

A suitable mating plug for the power supply is, for example, the type PC 4/3-STF-7.62.

9.4 Environment

Installation must only be carried out in a place that is free of dust, soot, metal shavings, corrosive or metallic vapours, gases or liquids. Condensation of moisture must be avoided. If condensation cannot be ruled out when the appliance is out of service, care must be taken to ensure that the condensation moisture has been removed prior to commissioning. It may be necessary to provide a suitable heater or, if necessary, an air conditioner at the installation site.

9.5 Cooling

In order to be able to dissipate the heat generated in the device (heat output max. 60W), the entire side wall of the electronic frame consists of a generously dimensioned heatsink.

During installation, care must be taken to ensure that neither the heat sink nor the ventilation holes in the side walls may be covered by other components. The air flowing in from below must have a **maximum temperature of 50°C** (measured 2cm below the device). The minimum temperature is 0°C.

In addition, it is important to ensure that the heat extracted from the device is actually released into the environment and is not only circulated in the closed control cabinet (provide supply air and exhaust air openings or, if necessary, install an air conditioning unit).

9.6 Connecting Peripherals

9.6.1 General information

If peripherals are to be connected to interfaces, **shielded cables must** be used. Basically, the cable shield should be connected to the connector housing at both ends. However, if the ground connections of two devices are at different potentials, this can lead to large compensating currents over the cable shield, which in turn results in strong heating of the cable (fire hazard!). In this case, the cable shield only needs to be connected to the connector housing at one end. On the second connector housing, the cable shield inside (!) is to be connected to the connector housing via a parallel connection consisting of Ω a 1M resistor (1/4W) and a 68nF-Y capacitor.

In general, all lines should be kept as short as possible. Free-floating cables are very susceptible to interference, both as active and passive antennas. Grounding connections should be as short and thick as possible. The control cabinet itself must be well grounded.

9.6.2 Serial Interface

The serial port designated 'COM1' is an AT-compatible RS232C interface (Rx, Tx, #RTS and #CTS only). Peripherals can be connected to it with shielded cable.

9.6.3 Ethernet

The one with 'eth0' ... 'eth3' RJ45 sockets are used to connect the device to the Ethernet. The interfaces support 10/100/1000Base-T networks, so it is essential to use a Cat.5e patch cord (or better) for wiring.

9.6.4 USB

The four sockets labelled 'USB' are used to connect USB peripherals (Universal Serial Bus). The interfaces comply with the USB specification 2.0 or 3.0 and are "hot-pluggable", i.e. they may be plugged in or unplugged during operation.

To protect the device, the power output is limited with all USB interfaces. The two USB 3.0 ports on the port side can be loaded with a **maximum of 1A** in total, as well as the two USB 2.0 interfaces. Only cables intended for USB may be used.

10 Inserting the CFast card

For easier handling of the CFast card, it is inserted with the back facing up, see the following picture. As a result, the handle edge is at the top, so that an inserted card can be easily pulled out on this protruding edge.



Attention: The CFast card may only be inserted in the way described here without significant effort! Forcible, twisted or tilted insertion will damage the CFast socket!

To secure the card against falling out, the cover plate can then be pushed in front of the CFast cut-out and clamped with the existing knurled screws.

11 Changing the battery

To ensure that the real-time clock continues to run even when switched off, a lithium battery is available in the box PC. It is a CR2477 lithium coin cell with a nominal voltage of 3.0V and a typical capacity of 1000mAh.

To replace the lithium battery, open the cover of the battery compartment on the side wall of the device. With the help of the angled tab of the cover plate, the button cell can now be pulled out and replaced by a similar one.

Attention: Only lithium manganese dioxide button cells of type CR2477 (24mm Ø x 7.7mm) with a nominal voltage of 3.0V may be used!

12 Changing fuses

To protect against fire, there is a fine fuse in the device:

- **Power Supply Fuse:** If this fuse needs to be replaced, please only use 5x20mm fuses with the characteristics 4A/250V, time-lag.

13 Specifications

Metrics	W x H x D: 83mm x 230mm x 250mm, weight approx. 3.6kg.
Supply voltage	AC 230V, 50Hz, max. 0.8A
Power consumption	60W maximum.
Protection	IP20 gemäß EN 60529.
Permissible ambient temperatures	0 ... 50°C, measured 2cm below the device.
Humidity class	F according to DIN 40040 (max. 95% at 25°C).



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