noax® Technologies

User Manual Industrial PCs of board version N10

Table of Contents

1 About this User Manual

1.1 Target group

This user manual is directed towards qualified technical staff.

It completes their knowledge for appropriate assembly, operation and service of the device but it does not substitute it.

1.2 Requirements

Basic technical knowledge for assembly, software installation and service of technical devices is required to understand and use the descriptions in this user manual correctly.

1.3 Signal words

Following signal words are used in this document:

Danger	*Danger* describes warning notices where you will be in danger of being killed or severe injury if they are disregarded.
Warning	*Warning* describes warning notices where you will be in danger of minor injury or severe material damage if they are disregarded.
Precaution	*Precaution* describes warning notices where minor material damage could happen if they are disregarded.

1.4 Symbols

Following symbols are used in this document:

1.4.1 Advice symbols

This user manual contains advice which should be followed for your personal safety and to avoid material damage.


Advice symbol for danger in association with one of the signal words **Precaution, Warning** or **Danger**.


Advice symbol for danger by electricity, in association with one of the signal words **Precaution, Warning** or **Danger**.


Advice symbol for danger by electrostatic discharge, in association with one of the signal words **Precaution, Warning** or **Danger**.


Advice symbol for danger by hot surface, in association with one of the signal words **Precaution, Warning** or **Danger**.


Advice symbol for danger by explosion, in association with one of the signal words **Precaution, Warning** or **Danger**.


Advice symbol for corrosives in association with one of the signal words **Precaution, Warning** or **Danger**.

ⓘ **Advice** for the handling of the product.
An unexpected occurrence or condition could happen if this advice is disregarded.

📖 Cross reference to other chapters.

1.4.2 List symbols

- List
  - Subitem of a list

▶ Instruction which has only one step.

1. Instruction which has several steps. The steps must be executed in the stated order.

1.5 Markings

Following markings are used in this document:

Marking	Description
italic	Emphasis
bold	Product description or strong emphasis
`Courier`	Term for software areas (GUI) and device labellings

1.6 Abbreviations and technical terms

Following abbreviations are used in this document:

Abkürzung	Beschreibung
ALS	Ambient Light Sensor
CFL	Compact Fluorescent Light
CPU	Central Processing Unit
GPRS	General Packet Radio Service
HDU	Hard Disk Unit
IMEI	international Mobile Station Equipment Identity
MAC	Media Access Control Address
SIM	Subscriber Identity Module
UMTS	Universal Mobile Telecommunications System
Windows	Microsoft Windows operating system
WLAN	Wireless Local Area Network

Following technical terms are used in this document:

Abkürzung	Beschreibung
AHCI	**A**dvanced **H**ost **C**ontroller **I**nterface
GUI	**G**raphical **U**ser **I**nterface
MCU	**M**icro **C**ontroller **U**nit
NCQ	**N**ative **C**ommand **Q**ueuing
PCI	**P**eripheral **C**omponent **I**nterface
PCIe	**P**eripheral **C**omponent **I**nterface **e**xpress

2 Intended use

Your Industrial PC has been manufactured according current technical standards and complies with approved safety regulations.

The noax Industrial PC is suitable for recording operating and machine data, supporting personnel planning, streamlining commissioning, controlling machines or visualizing production procedures.

Depending on the housing design of noax Industrial PC (see Chapter 5.1), it can be fixed or mobile for use on vehicles or in hygienic and medical areas.

Any other use is not in compliance with its intended use. The user or operator of the noax device is solely responsible for any resulting damage.This also applies to unauthorized modifications to the device.

ⓘ Use the Industrial PC only in flawless and undamaged condition.

3 Scope of delivery

Please check the content of this package for completeness according to the delivery slip.

Please call the noax-hotline if there are any discrepancies (see Chapter 4.8).

The packaging was developed especially for the noax Industrial PC to prevent shipping damage. Please keep this packaging safe.

ⓘ Please transport the Industrial PC in this packaging only.

4 General safety information

Please follow the valid VDE/IEC/EN regulations while using products with electrical voltage.

Warning
Repairs on Industrial PC devices should only be carried out by authorized personnel.

Warning
Basically do not repair the device on your own. Always contact our noax hotline and send the device back for maintenance if necessary. Our service needs the important device information on the label of the Industrial PC**.**
There are important information refering the features and production site of your device.
Please always inform the engineer about the complete code and serial number (see Chapter 5.2).

4.1 Documentation

- To avoid injury and damage, please read and observe the following usage and safety information before initial operation.
- The manufacturer/supplier is not liable for any damages caused by non-compliance with this information.
- This manual must remain with the Industrial PC and be passed along with it

4.2 Handling with this device

- Respect the strong weight of some enclosures for handling and operation
- The Industrial PC should only be used when it is fully functional and free of damage!
  Please change the device or the part especially when:
  - the power cable or the mains plug is damaged
  - there is an intrusion of liquid into the device enclosure
  - there is a malfunction while using the device
  - the enclosure is damaged
- Malfunctions that can affect safety (e.g. faulty power cable or enclosure) must be immediately eliminated by you or a third party in accordance with specifications!
- Ensure that the electrical specifications on the attached label correspond to the used power supply!
- Batteries:
  Only use batteries of the same type, or similar types recommended by the manufacturer.

For disposing please look at Chapter 15.

- IP65 (NEMA 4) protection:
  Make sure that liquids and caustic vapors (e.g. from cleaning agents) are not able to penetrate the interior of the IP65 protected electronics, especially regarding the connector area.

4.3 Enclosure S15-G2, S19 and C19, C21 with option integrated power supply

Use only the mains cable that was supplied with the S15-G2, S19 and C19, C21 with option integrated power supply IPCs, because only this cable ensure the locking mechanism. Take care that the mains cable is not damaged.

4.4 External power supplies

- The external power supply should not be opened for any reason. It does not contain any serviceable components.
- When attaching the power supply, only use the supplied mounting frame, or use the available drill holes (do not attach to the cable). To avoid overheating, it should not be covered or installed in an enclosure that is too small.
- The power supply should only be connected to the mains supply using a protective earth conductor. Only use the supplied power cable as it meets all important safety regulations.
- The Industrial PC should only be operated using the provided power supply or the optional provided connection cable with integrated fuse.

4.5 External devices

- External devices (e.g. maintenance floppy, scanner...) should only be connected/disconnected to/from the Industrial PC when it is switched off. Otherwise, this could damage the Industrial PC electronics or the external device itself. Wait at least five seconds after switching off the Industrial PC before connecting an external device (exception: Hot Plug devices connected to USB or Firewire ports).
- When connecting cables to the Industrial PC, make sure that there is no tensile loading on the cable.

4.6 Safety information for selected countries

4.6.1 Norway

Warning
Utstyr som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr - og er tilkoplet et kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av utstyret til kabel-TV nettet installeres en galvanisk isolator mellom utstyret og kabel-TV nettet.

4.6.2 Sweden

Warning
Utrustning som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av utrustningen till kabel-TV nät galvanisk isolator finnas mellan utrustningen och kabel-TV nätet.

4.7 Cleaning information

Please refer to the information in Chapter 12 ”**Maintenance and cleaning the Industrial PC**”

4.8 Upgrades and maintenance work on the Industrial PC

The Industrial PC should only be opened by authorized personnel with basic knowledge of PCs. The warranty is voided by improper upgrades and maintenance work. When in doubt, let our service department perform this work. Please contact our hotline under:

Hotline Europe		Hotline North America	
Tel.	**+49 (0) 8092 8536 33**	**Tel.**	**+1 704 992 1606**
Fax	**+49 (0) 8092 8536 55**	**Fax**	**+1 704 992 1712**
eMail:	**hotline@noax.com**	**eMail:**	**hotline@noaxna.com**

5 Enclosure and mainboard types

5.1 Enclosure types

C12 – compact enclosure 12 inch

C15 – compact enclosure 15 inch

C19 – compact enclosure 19 inch

C21 – compact enclosure 21.5 inch

S12 – stainless steel enclosure 12 inch

S15 – stainless steel enclosure 15 inch

S15-G2 – stainless steel enclosure 15 inch

S19 – stainless steel enclosure 19 inch

P15 – front installation enclosure 15 inch

5.2 Noax labels for Industrial-PCs C15, S12, S15, S15-G2, S19 and P15

5.3 Noax label for Industrial-PC C12, C19, C21

5.4 Information on the noax label

The type of your N10 mainboard is indicated on the rating plate e.g. N10**F** or N10**C**.
Also the used type of display is indicated on the rating plate. (Extension S or X at the end of enclosure type e.g. C12**S** oder C12**X**)

In addition to the serial number SN this label contains more important information:

- Options, with those the IPC has been additionally equipped
- MAC1, address for LAN1 interface
- MAC2, address for LAN2 interface
- WLAN address

📖 Differences between the types are descriped in the technical data in Chapter 14.

ⓘ **For further information please visit our website at www.noax.com**

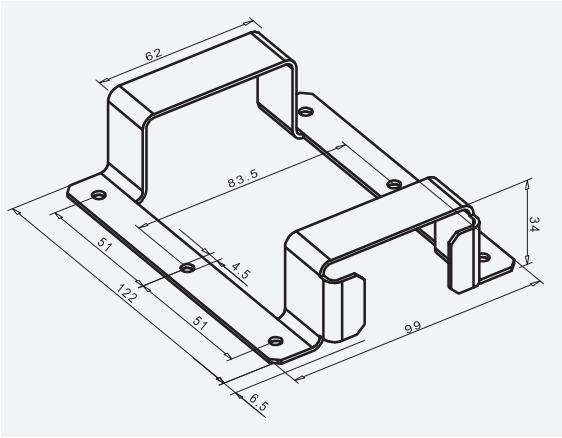
6 Power supplies

6.1 External table power supply

The following components are included in shipment of the external table power supply:

- country-specific Power supply cable
- Power supply with device cable
- Mounting frame

Fig. 1: External table power supply



The mounting frame is used to hold the table power supply. With the aid of the fixing holes on the mounting frame, the power supply can be mounted e.g. directly onto the wall.

Fig. 2: Mounting frame (all dimensions in mm)

Warning
The power supply must not be positioned in the enclosure or in the plug area of the Industrial PC. This would create a risk of overheating.

6.2 External power supply IP65 (NEMA 4)

Fig. 3: External power supply IP65 (NEMA 4)

The external power supply with protection system IP65 (NEMA 4) can be attached e.g. directly to the wall using the fixing holes.

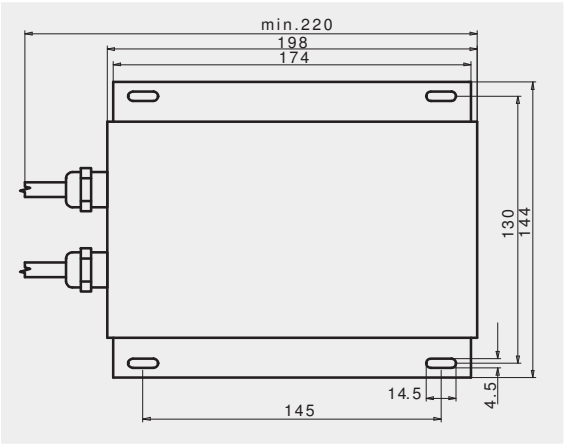


Fig. 4: Fixing holes (all dimensions in mm)

To install the external power supply, copy the drilling spacing shown in the drawing to the wall onto which you wish to attach the equipment.

7 Safety notes for initial operation

Danger
An explosion hazard will be created if the CMOS battery (type CR2032, −40°C(−40°F)/+80°C(176°F)) is installed incorrectly. Install the battery with the "+" sign up (the "+" sign must be visible after installation).

Danger
Do not use the Industrial PC in explosive environment.

Warning
These devices contain electronic components with highly integrated modules or modular elements. These electronic components are highly sensitive to surges as well as the discharge of static electricity. To avoid damage, you should discharge the static electricity from your body before handling any system components. When working on electronic components, please use an approved ESD wristband.

Warning
The power supply must not be positioned in the enclosure or in the plug area of the Industrial PC**.** This would create a risk of overheating.

Warning
When opening the device, please be aware that some parts and components become hot during operation (e.g. memory). These components should be allowed to cool before being handled.

Danger
Repairs to electronic devices should only be carried out by authorized personnel. Improper work on electrical and electronic devices could cause life-threatening electric shocks.

Danger
Faulty and damaged electrical equipment and parts should only be replaced by authorized electricians.

Warning
It is required for enclosure types S15-G2, S19 and C19, C21 with option integrated power supply to execute the check according to DIN VDE 0701 / 0702 in periodic intervals and after working nearby the internal power supply.

Warning
Make sure that there is no potential equalization through the device. (e.g. by ground loops)

Precaution
The power supply (enclosure types C12, C19, C21, S12, C15, S15, P15) or the device itself (enclosure type S15-G2, S19 and C19, C21 with option integrated power supply) must be installed in such a way to allow disconnection from the mains supply at any time. The mains plug of the respective countries is used as disconnect device. The socket-outlet must be installed near the equipment and must be easily accessible.

Danger
Risk of electronic influence: Without a permission, it is not allowed to switch on the Industrial PC in airplanes, hospitals or other medical environments.

Warning
Risk of injury: Respect the strong weight of the enclosure for handling and operation, especially enclosure types S15-G2 and S19

Warning
The Industrial PC must be disconnected from the power supply before the device is opened for upgrades or service work! Disconnect the power cord from the ”Power 24V” connector on the Industrial PC. It is not sufficient to just turn off the device.

Precaution
In case of interferences relating to radio or television reception (check it, by switching the Industrial PC on and off), one of the following actions can resolve the problem:

- Adjust the receiving aerial to a new position, or change the place.
- Increase the distance between Industrial PC and receiver.
- Use another electric circuit for the power-supply of the Industrial PC.
- Contact your specialist dealer or a radio- and television technician.

7.1 Take action in respect of EMV guidelines

Use only shielded cables for connections with the serial interfaces (COM1, COM2) of the noax Industrial PC to ensure failure-free operation of the connected devices.

ⓘ noax IPCs may be equipped only with noax sold antennae (WLAN etc.).

ⓘ Network cables of the Cat.6 must be used to reliably adhere the possible Class B of the DIN EN 55022 for some IPCs.

7.2 Touch Display

Warning
To avoid damage and malfunctions, do not contact the touch display surface with pointed, sharp, hard and rough surfaces.

ⓘ Touch-sensitive protective film for extreme conditions is available as an optional accessory.

Warning
Do not hit or strongly press down on touch and display surfaces as this could cause damage or disruptions (e.g. resulting in glass breakage).

Precaution
Do not place the Industrial PC face down on a hard surface. If necessary, put a soft cloth or piece of foam under it, and make sure that nothing damages the touch display (e.g. screws).

Precaution
Do not wipe the touch display surface with articles of clothing or sponges because this could scratch the surface (e.g. buttons in jacket sleeves or grit in sponges).

📖 You will find additional informations about the “Touch cleaning mode” in Chapter 12.2 or 12.3.

8 Mounting

ⓘ You can find more information about mounting, connector covers and various device holders on our web page **www.noax.com.**

8.1 Assembly site

The Industrial PC is designed for harsh operational conditions.

Nevertheless, please observe the following rules for installation:

- Avoid strong exposure to sunlight on the display since it will make reading difficult.
- Do not expose the Industrial PC to direct heat. Make sure that there is sufficient cross-ventilation at the rear panel or rather at the rear cooling fins.
- Allow at least 15 mm more depth for front installation devices to ensure sufficient air circulation.
- Do not mount the Industrial PC on equipment that strongly vibrates. If this is unavoidable, mount the device on shock absorbers and vibration dampers.
- If the device is to be installed on a fork-lift or similar vehicle, you **must take additional measures for shock and vibration dampening** (available as an option: ”Conversion for mobile use” = additional securing of connectors and cables).
  We have designed special device holder for these applications. You can get them as special assembly accessory.

ⓘ The device will automatically turn itself off when it overheats or the temperature falls below a certain point.

8.2 Tighten torque for screws

Size of screw head	Tighten torque
M3	0,6 Nm = 60 Ncm
M4	1,2 Nm = 120 Ncm
M5	2,5 Nm = 250 Ncm
M6	4,0 Nm = 400 Ncm

ⓘ To ensure the liquid tightness of the Industrial PC enclosure, you must tighten all srews (especially those of the rear panel) with the above listed torque!

8.3 Tighten torque for screws only C12 devices

Size of screw head	Tighten torque
M3	0,3 Nm = 30 Ncm
Thermoplastic screws 25x5—T8	0,125 Nm = 12,5 Ncm (+/- 0,5Ncm)

ⓘ To ensure the liquid tightness of the Industrial PC enclosure, you must tighten all srews (especially those of the rear panel) with the above listed torque!

8.4 Tools

You need the following tools for mounting or opening the Industrial PC:

- Torx screwdriver, TX 10
- Torx screwdriver, TX 20

- Hexagon screwdriver, size 3,0
- Hexagon screwdriver, size 4,0

- Phillips recessed head screwdriver, size 1 (PH 1)
- Phillips recessed head screwdriver, size 2 (PH 2)

- Socket wrench, SW 5,0
- Socket wrench, SW 7,0

8.5 Connector cover

To protect the Industrial PC against liquids, dust or aggressive vapors you must use a special connector cover available for each enclosure (optional accessory).
A enclosed product information specifies the mounting and handling.

8.6 The compact enclosure C12

Various device brackets and wall mounting brackets which can be attached to the T-Slot nuts are available for the Industrial PC. The variable height adjustment (T-Slot at rear panel) and the asymmetrical design of the bracket offer a wide variety of assembly and installation options in different positions. A attached product information explains the mounting and use of the device bracket.

Warning
Check and make sure that the device bracket is securely and stable attached.

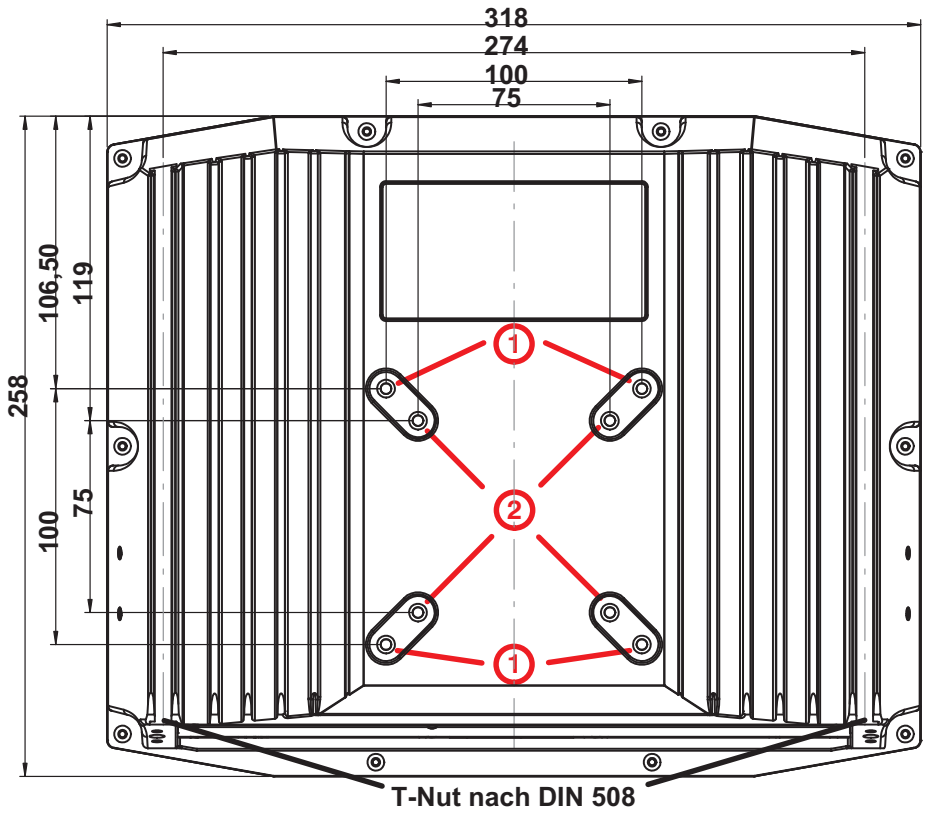


Fig. 5: Back, C12 enclosure (all dimensions in mm)

① VESA 100 mounting option with M5 thread (deepness 7.5mm)
② VESA 75 mounting option with M5 thread (deepness 7.5mm)

To install the enclosure, please copy the drilling spacing shown in the drawing to the wall onto which you wish to attach the equipment.

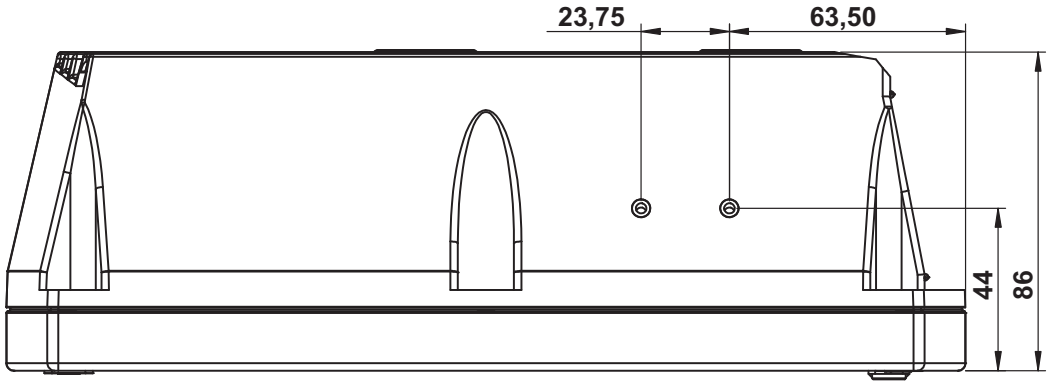
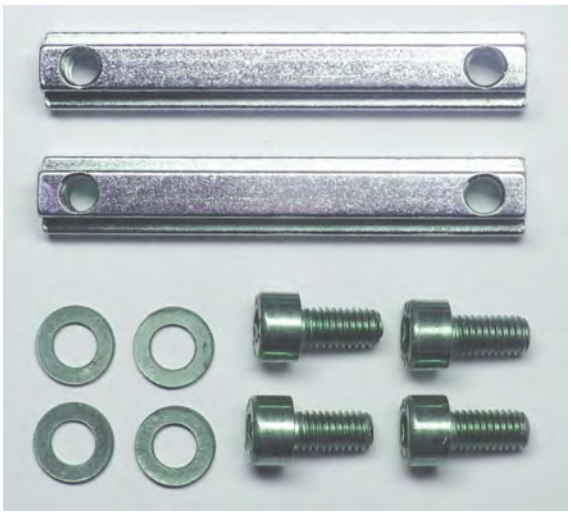


Fig. 6: Unit depth, C12 (all dimensions in mm)

8.6.1 T-slot nuts



The installation of the Industrial PC in the C12 compact enclosure is performed via the rear panel, which has two T-Slots for T-Slot nuts.

The long T-Slot nuts (DIN 508 / M5 / 58 mm long), screws (M5x10mm) and washers are included in the delivery contents.

Fig. 7: T-slot nuts, washers and Allen screws

1. Screw the long T-Slot nuts (DIN 508 / M5 / 58mm long) directly onto the wall (e.g. control cabinet door) and hook the Industrial PC into the T-Slot nuts.
2. Use the T-Slot nuts to attach the optional equipment and wall bracket.

ⓘ Two fixed T-Slot nuts (stoppers, DIN 508 / M5 / 6mm long) are inserted in the factory at the upper end of both T-Slots. These T-Slot nuts prevent the Industrial PC from falling off/down if the long T-Slot nuts which are used to secure the Industrial PC are released. They also make installation easier.

Warning
For safety reasons never remove the fixed T-Slot nuts (stoppers).
Check and make sure that the long T-Slot nuts and stoppers are securely attached.

8.6.2 VESA 100 mounting option

Four drill holes with threaded sleeve are attached at the back side of this enclosure according to VESA (FDMI™) Standard version VESA MIS-D,100,C.
(100 mm distance quadrate order, M5 thread, deepness 7.5mm)

8.6.3 VESA 75 mounting option

Four drill holes with threaded sleeve are attached at the back side of this enclosure according to VESA (FDMI™) Standard version VESA MIS-D,75,C.
(75 mm distance quadrate order, M5 thread, deepness 7.5mm)

8.7 The compact enclosure C15

Various device brackets and wall mounting brackets which can be attached to the T-Slot nuts are available for the Industrial PC. The variable height adjustment (T-Slot at rear panel) and the asymmetrical design of the bracket offer a wide variety of assembly and installation options in different positions. A attached product information explains the mounting and use of the device bracket.

Warning
Check and make sure that the device bracket is securely and stable attached.

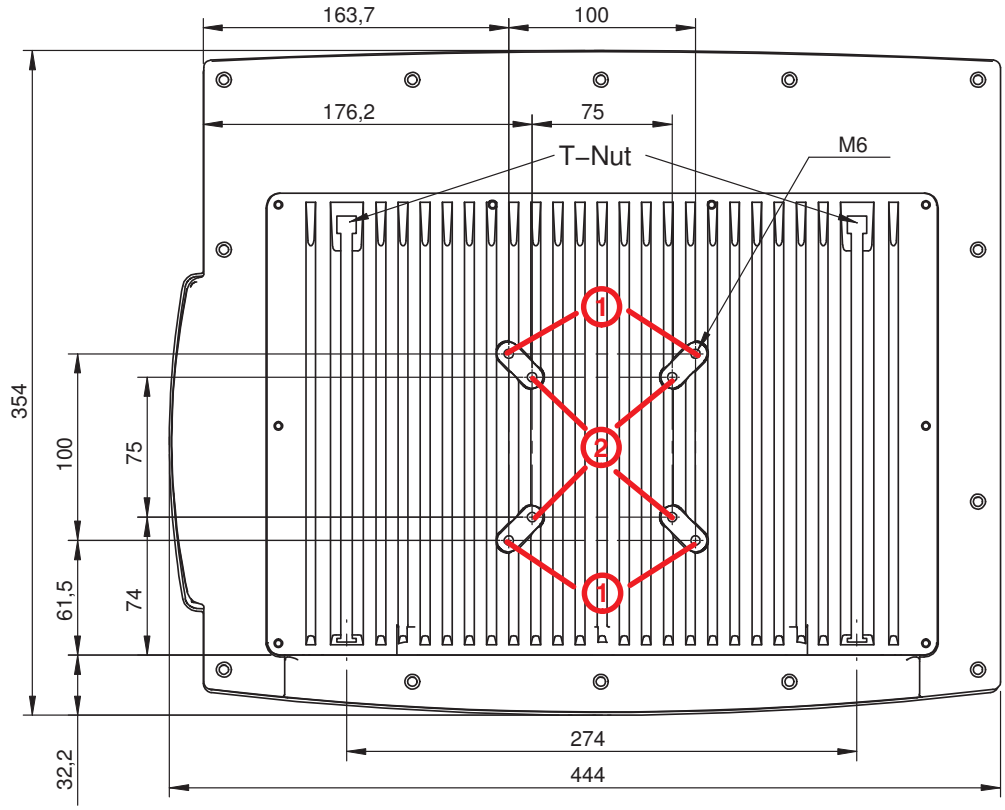


Fig. 8: Back, C15 enclosure (all dimensions in mm)

① VESA 100 mounting option with M6 thread(deepness 7.5mm)
② VESA 75 mounting option with M6 thread (deepness 7.5mm)

To install the enclosure, please copy the drilling spacing shown in the drawing to the wall onto which you wish to attach the equipment.

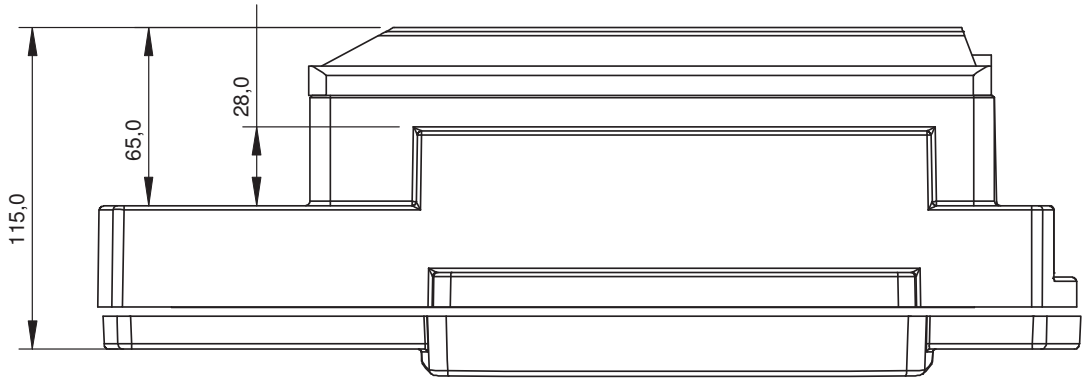
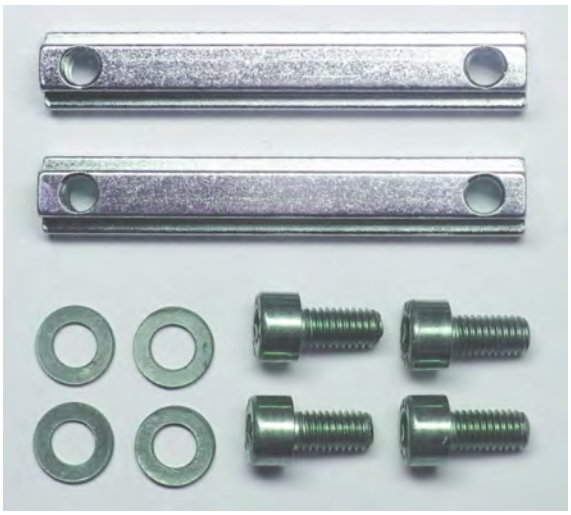


Fig. 9: Unit depth, C15 (all dimensions in mm)

8.7.1 T-slot nuts



The installation of the Industrial PC in the C15 compact enclosure is performed via the rear panel, which has two T-Slots for T-Slot nuts.

The long T-Slot nuts (DIN 508 / M5 / 58 mm long), screws (M5x10mm) and washers are included in the delivery contents.

Fig. 10: T-slot nuts, washers and Allen screws

1. Screw the long T-Slot nuts (DIN 508 / M5 / 58mm long) directly onto the wall (e.g. control cabinet door) and hook the Industrial PC into the T-Slot nuts.
2. Use the T-Slot nuts to attach the optional equipment and wall bracket.

ⓘ Two fixed T-Slot nuts (stoppers, DIN 508 / M5 / 6mm long) are inserted in the factory at the upper end of both T-Slots. These T-Slot nuts prevent the Industrial PC from falling off/down if the long T-Slot nuts which are used to secure the Industrial PC are released. They also make installation easier.

Warning
For safety reasons never remove the fixed T-Slot nuts (stoppers).
Check and make sure that the long T-Slot nuts and stoppers are securely attached.

8.7.2 VESA 100 mounting option

Four drill holes with threaded sleeve are attached at the back side of this enclosure according to VESA (FDMI^{TM}) Standard version VESA MIS-D,100,C.
(100 mm distance quadrate order, M6 thread, deepness 7.5mm)

8.7.3 VESA 75 mounting option

Four drill holes with threaded sleeve are attached at the back side of this enclosure according to VESA (FDMI^{TM}) Standard version VESA MIS-D,75,C.
(75 mm distance quadrate order, M6 thread, deepness 7.5mm)

8.8 The compact enclosure C19

Various device brackets and wall mounting brackets which can be attached to the T-Slot nuts are available for the Industrial PC. The variable height adjustment (T-Slot at rear panel) and the asymmetrical design of the bracket offer a wide variety of assembly and installation options in different positions. A attached product information explains the mounting and use of the device bracket.

Warning
Check and make sure that the device bracket is securely and stable attached.

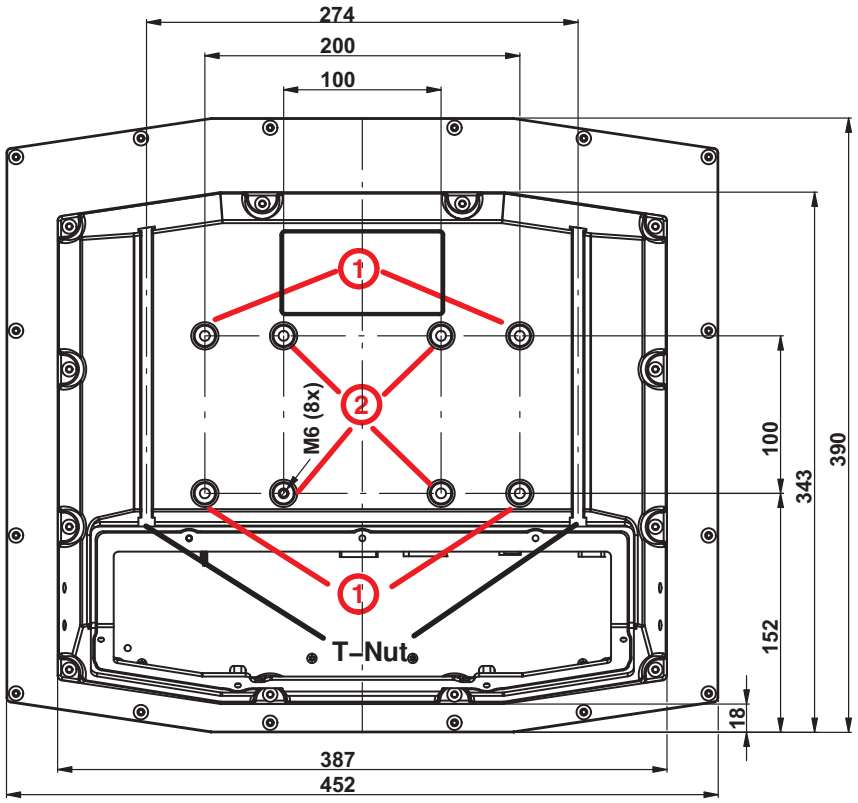


Fig. 11: Back, C19 enclosure (all dimensions in mm)

① VESA 200x100 mounting option with M6 thread (deepness 7.5mm)
② VESA 100 mounting option with M6 thread (deepness 7.5mm)

To install the enclosure, please copy the drilling spacing shown in the drawing to the wall onto which you wish to attach the equipment.

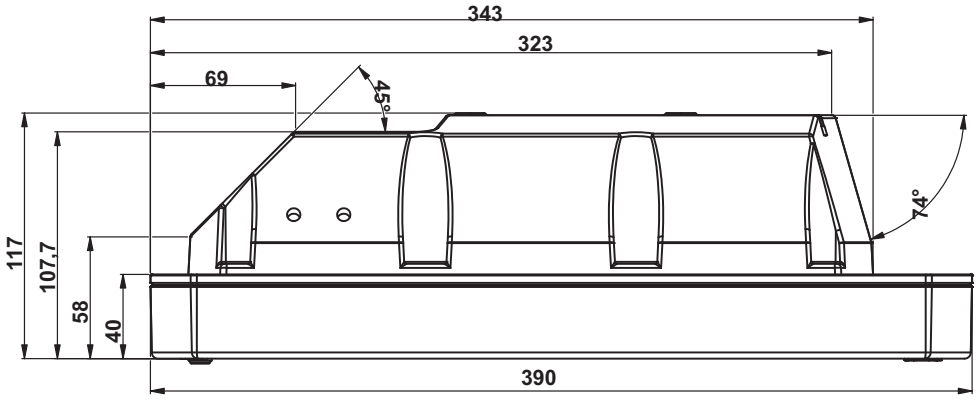
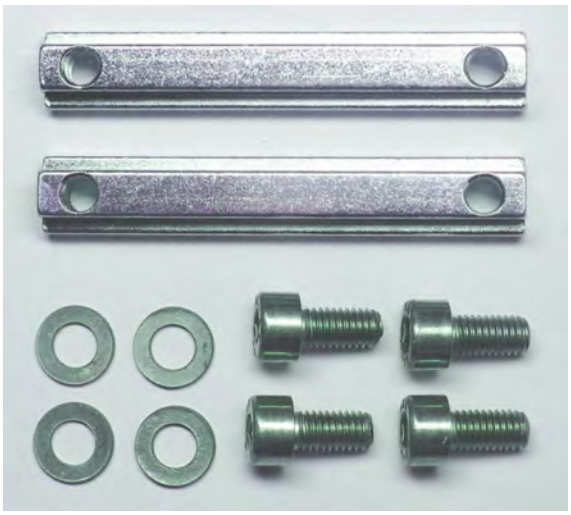


Fig. 12: Unit depth, C19 (all dimensions in mm)

8.8.1 T-slot nuts



The installation of the Industrial PC in the C19 compact enclosure is performed via the rear panel, which has two T-Slots for T-Slot nuts.

The long T-Slot nuts (DIN 508 / M5 / 58 mm long), screws (M5x10mm) and washers are included in the delivery contents.

Fig. 13: T-slot nuts, washers and Allen screws

1. Screw the long T-Slot nuts (DIN 508 / M5 / 58mm long) directly onto the wall (e.g. control cabinet door) and hook the Industrial PC into the T-Slot nuts.
2. Use the T-Slot nuts to attach the optional equipment and wall bracket.

ⓘ Two fixed T-Slot nuts (stoppers, DIN 508 / M5 / 6mm long) are inserted in the factory at the upper end of both T-Slots. These T-Slot nuts prevent the Industrial PC from falling off/down if the long T-Slot nuts which are used to secure the Industrial PC are released. They also make installation easier.

Warning
For safety reasons never remove the fixed T-Slot nuts (stoppers).
Check and make sure that the long T-Slot nuts and stoppers are securely attached.

8.8.2 VESA 200x100 mounting option

Four drill holes with threaded sleeve are attached at the back side of this enclosure following to VESA (FDMI™) Standard version VESA MIS-E,C. Deviating from the standard only the four outer holes are usable.
(M6 thread, deepness 7.5mm)

8.8.3 VESA 100 mounting option

Four drill holes with threaded sleeve are attached at the back side of this enclosure according to VESA (FDMI™) Standard version VESA MIS-D,100,C.
(100 mm distance quadrate order, M6 thread, deepness 7.5mm)

8.9 The compact enclosure C21

Various device brackets and wall mounting brackets which can be attached to the T-Slot nuts are available for the Industrial PC. The variable height adjustment (T-Slot at rear panel) and the asymmetrical design of the bracket offer a wide variety of assembly and installation options in different positions. A attached product information explains the mounting and use of the device bracket.

Warning
Check and make sure that the device bracket is securely and stable attached.

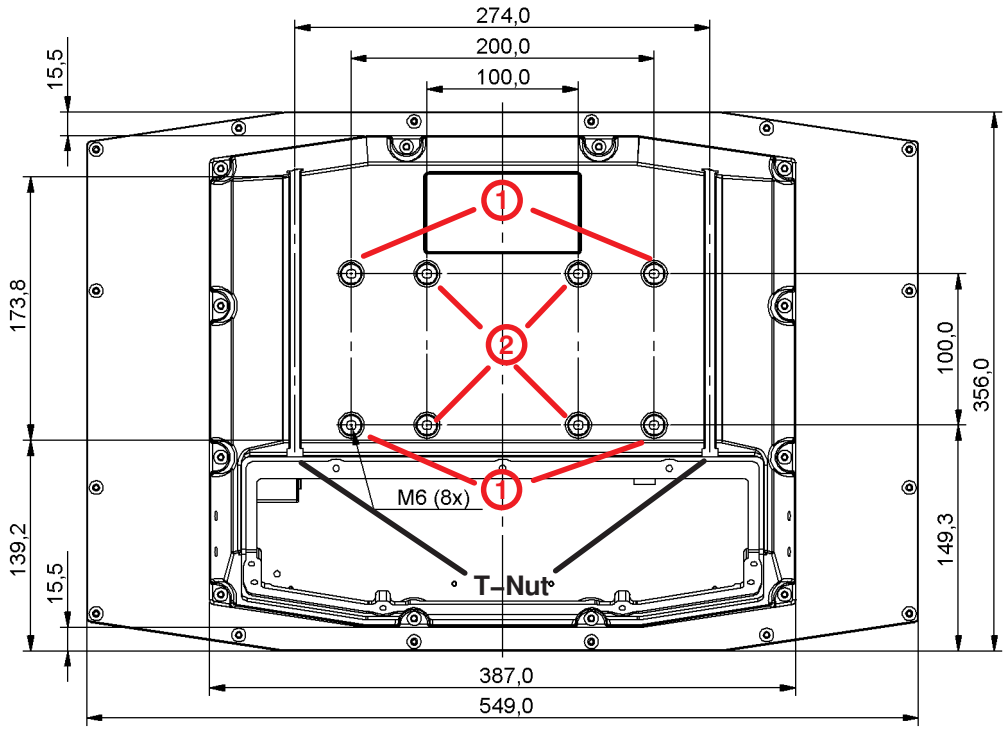


Fig. 14: Back, C21 enclosure (all dimensions in mm)

① VESA 200x100 mounting option with M6 thread (deepness 7.5mm)
② VESA 100 mounting option with M6 thread (deepness 7.5mm)

To install the enclosure, please copy the drilling spacing shown in the drawing to the wall onto which you wish to attach the equipment.

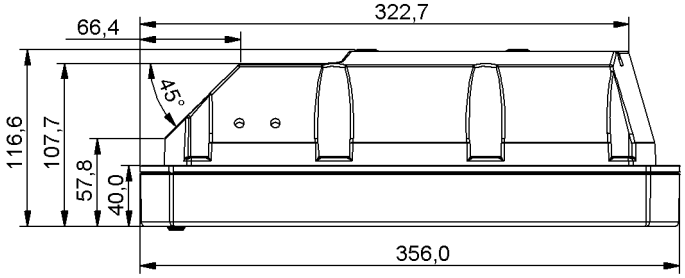
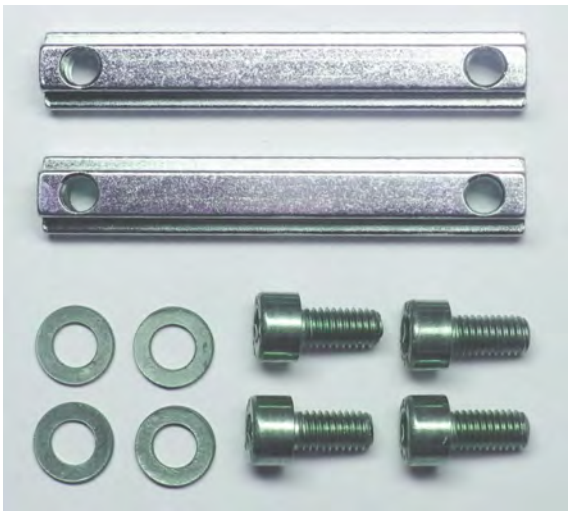


Fig. 15: Unit depth, C21 (all dimensions in mm)

8.9.1 T-slot nuts



The installation of the Industrial PC in the C21 compact enclosure is performed via the rear panel, which has two T-Slots for T-Slot nuts.

The long T-Slot nuts (DIN 508 / M5 / 58 mm long), screws (M5x10mm) and washers are included in the delivery contents.

Fig. 16: T-slot nuts, washers and Allen screws

1. Screw the long T-Slot nuts (DIN 508 / M5 / 58mm long) directly onto the wall (e.g. control cabinet door) and hook the Industrial PC into the T-Slot nuts.
2. Use the T-Slot nuts to attach the optional equipment and wall bracket.

ⓘ Two fixed T-Slot nuts (stoppers, DIN 508 / M5 / 6mm long) are inserted in the factory at the upper end of both T-Slots. These T-Slot nuts prevent the Industrial PC from falling off/down if the long T-Slot nuts which are used to secure the Industrial PC are released. They also make installation easier.

Warning
For safety reasons never remove the fixed T-Slot nuts (stoppers).
Check and make sure that the long T-Slot nuts and stoppers are securely attached.

8.9.2 VESA 200x100 mounting option

Four drill holes with threaded sleeve are attached at the back side of this enclosure following to VESA (FDMI™) Standard version VESA MIS-E,C. Deviating from the standard only the four outer holes are usable.
(M6 thread, deepness 7.5mm)

8.9.3 VESA 100 mounting option

Four drill holes with threaded sleeve are attached at the back side of this enclosure according to VESA (FDMI™) Standard version VESA MIS-D,100,C.
(100 mm distance quadrate order, M6 thread, deepness 7.5mm)

8.10 The S12 and S15 stainless steel enclosure

This types of enclosure are attached with the four threaded sleeves on the back. These are closed M5 insert nuts. Therefore it is important to check that the used screws are the correct length.

ⓘ **The screws must not be screwed into the closed insert nuts by more than 8 mm.**

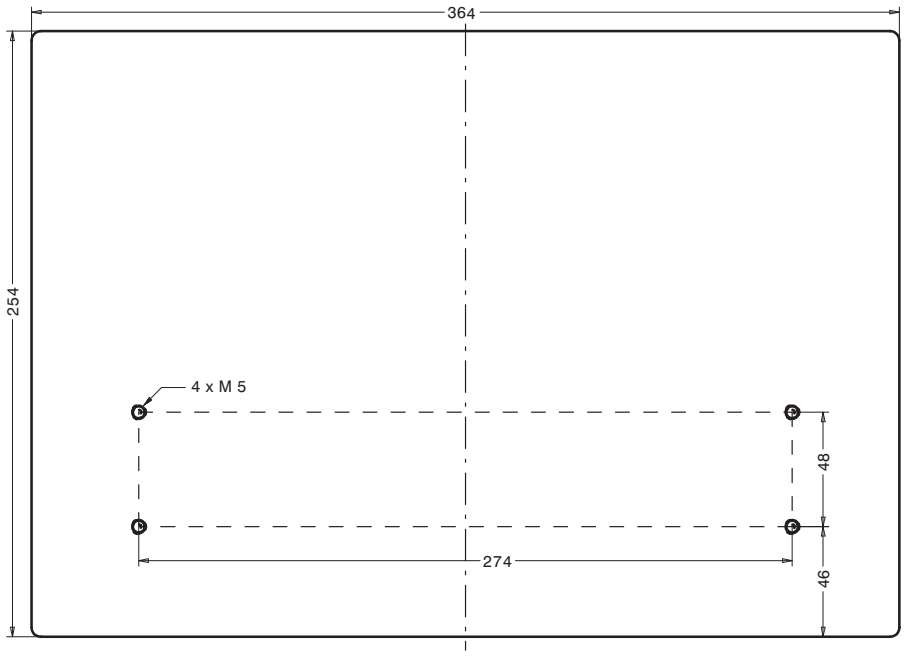


Fig. 17: Back, S12 stainless steel enclosure (all dimensions in mm)

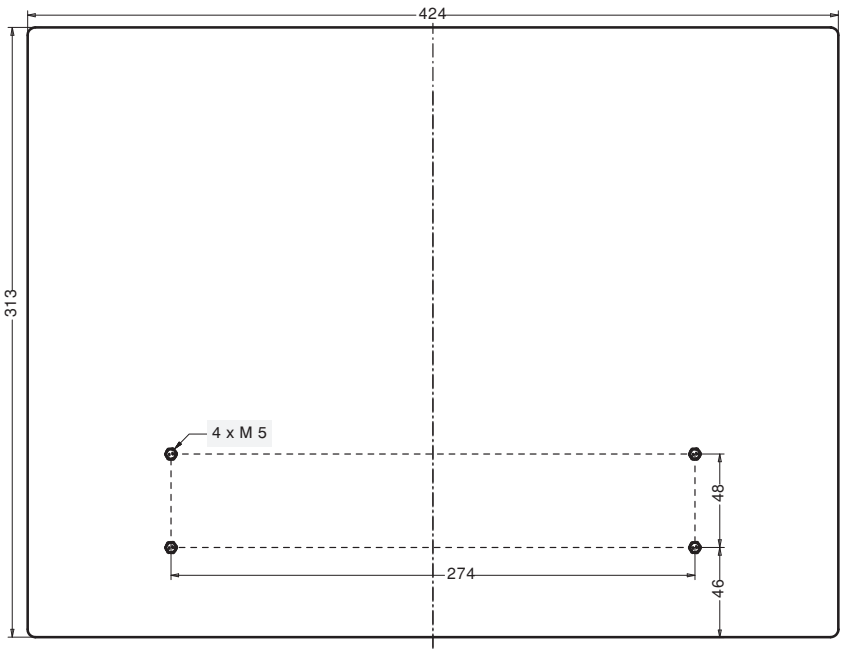


Fig. 18: Back, S15 stainless steel enclosure (all dimensions in mm)

To install the enclosure, please copy the drilling spacing shown in the drawing to the wall onto which you wish to attach the equipment.

8.11 The S15-G2 and S19 stainless steel enclosure

8.11.1 S15-G2 stainless steel enclosure

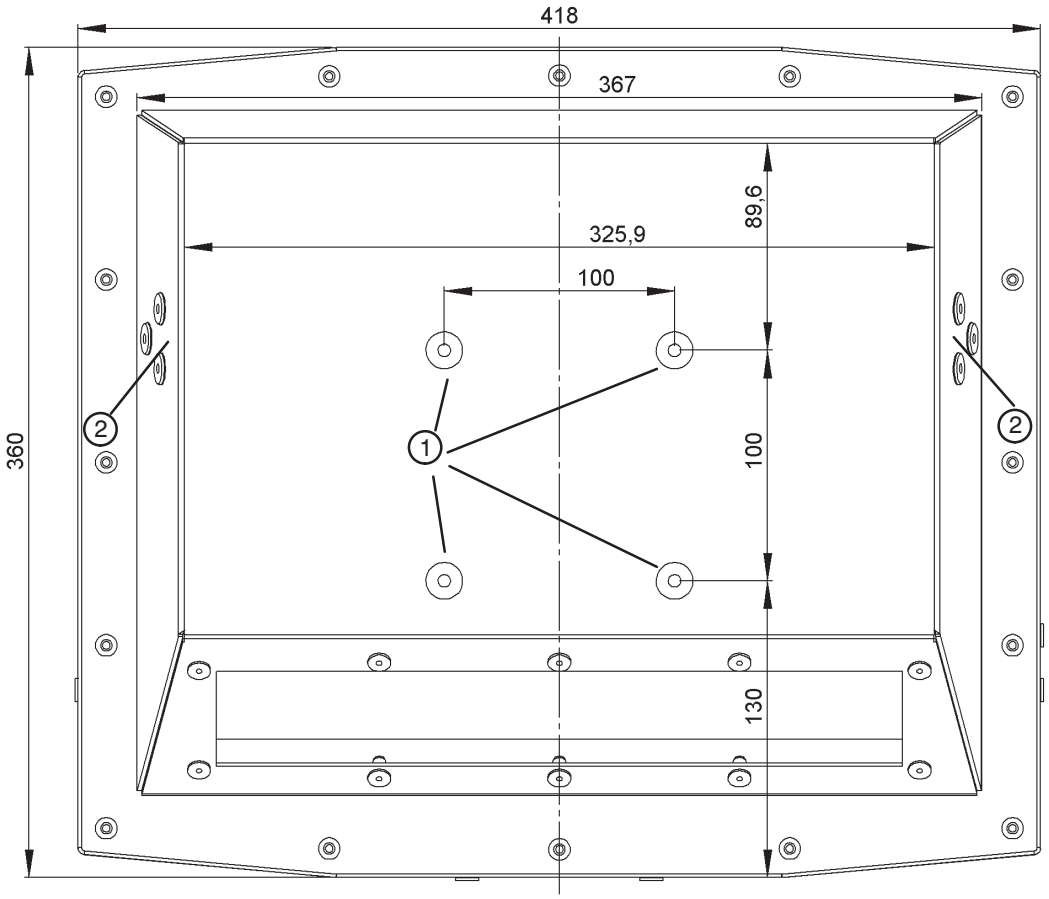


Fig. 19: Back, S15-G2 stainless steel enclosure (all dimensions in mm)

① VESA 100 mounting option with M6 thread
② Mounting possibility for device option

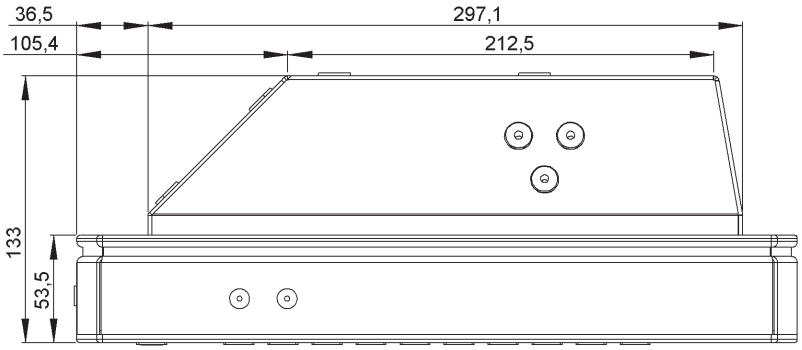


Fig. 20: Unit depth, S15-G2 stainless steel enclosure (all dimensions in mm)

Warning
Check and make sure that the enclosure is securely and stable attached. In conjunction with the choice of your attachment parts: Respect the strong weight of this enclosure!

see technical data in Chapter 14

8.11.2 S19 stainless steel enclosure

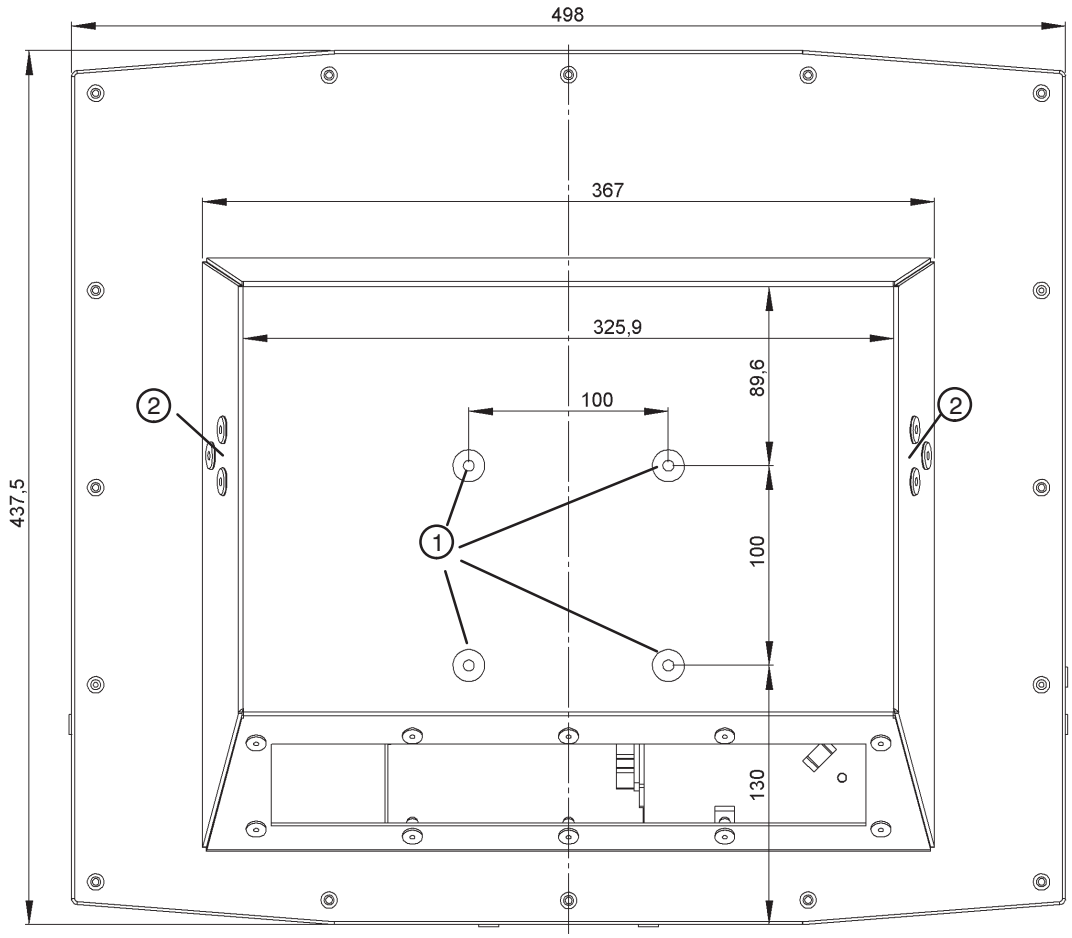


Fig. 21: Back, S19 stainless steel enclosure (all dimensions in mm)

① VESA 100 mounting option with M6 thread
② Mounting possibility for device option

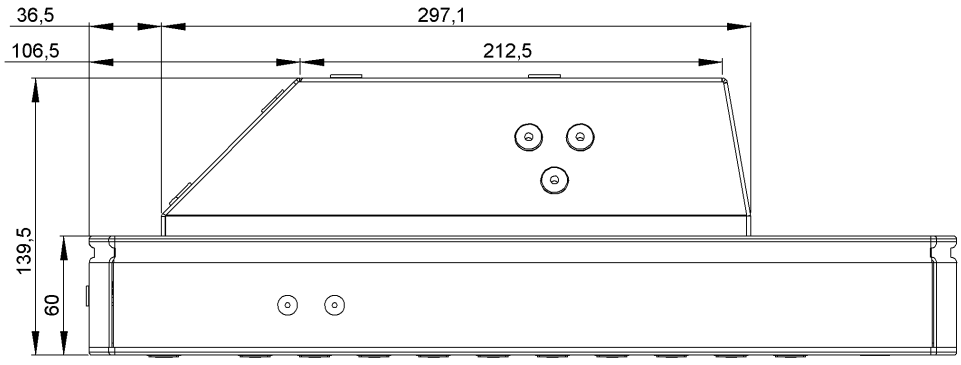


Fig. 22: Unit depth, S19 stainless steel enclosure (all dimensions in mm)

Warning
Check and make sure that the enclosure is securely and stable attached. In conjunction with the choice of your attachment parts: Respect the strong weight of this enclosure!

see technical data in Chapter 14

8.11.3 VESA 100 mounting option

Four drill holes with threaded sleeve are attached at the back side of this enclosure according to VESA (FDMI™) Standard version VESA MIS-D,100,C.
(100 mm distance quadrate order, M6 thread, deepness 7.5mm)

8.11.4 Mounting option for optional accessories

The drill holes on the left and right side of the enclosure back can be used to mount different assembly accessories like (optional parts) :

- noax wall mounting bracket
- noax table mounting bracket

8.12 Mounting the P15 front installation enclosure

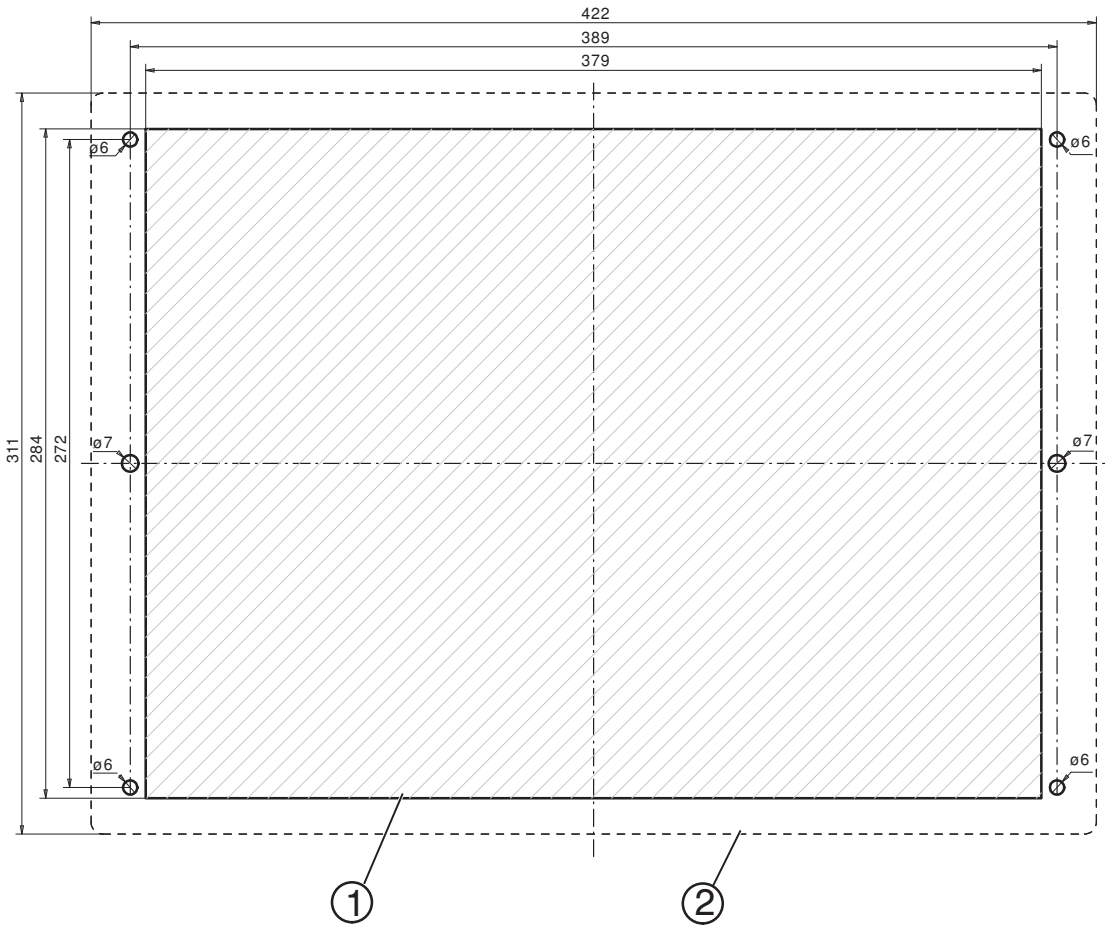


Fig. 23: Installation cut-out, P15 front installation enclosure (all dimensions in mm)

① Cut-out for installation
② Dimensions of the front panel of the Industrial PC

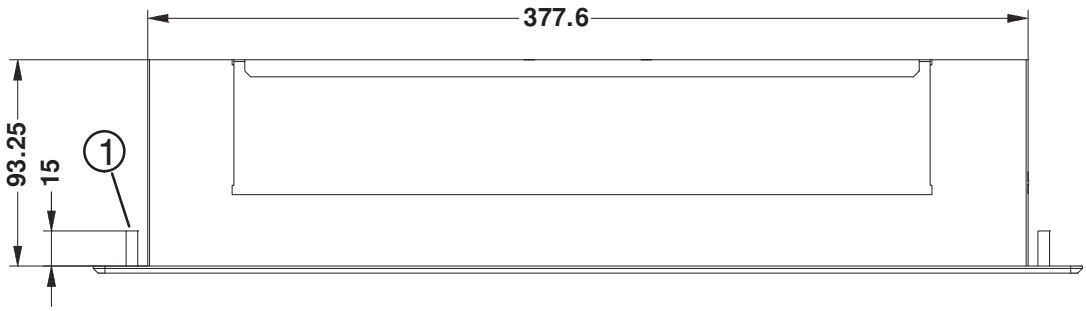


Fig. 24: Unit depth, P15 front installation enclosure (all dimensions in mm)

① 4xThread bolts M5x15

Warning
To ensure proper air circulation, you should provide 15 mm additional depth for installation.

9 Connectors and Interfaces

Warning
Please observe correct pin assignment and correct connection of the lines.

Warning
Do not exceed the maximum permitted supply current of 1.0 A when supplying current to external devices.

ⓘ For more information on available interface modules, visit our website at www.noax.com.

9.1 Connectors

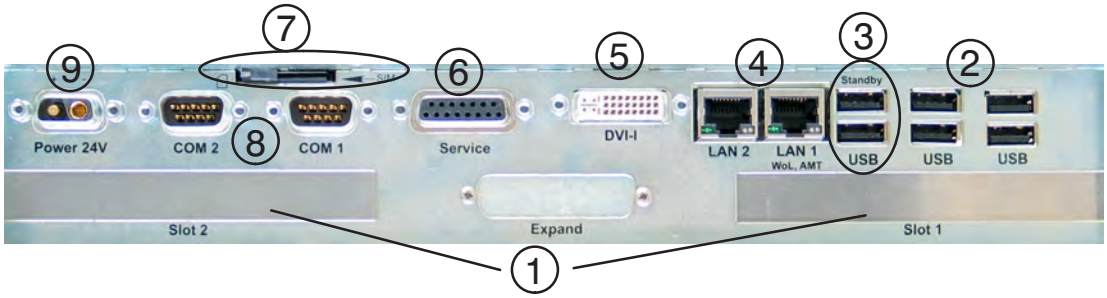


Fig. 25: N10F Connectors

① Free card slots PCI/PCI Express
② Four USB 2.0 ports
③ Two USB 2.0 ports with standby supply
④ Two LAN ports with status LEDs
⑤ DVI monitor port
⑥ Service port
⑦ SIM card slot
⑧ Two COM interface ports
⑨ Power supply

Warning
When using S15-G2 and S19, connect only the mains cable included in the scope of delivery because a secure locking of the plug connection can only be ensured with the safety catch. Please ensure the mains cable is not damaged.

Warning
Connect and disconnect all device connectors only when de-energized

9.2 Connectors C19, C21 with option integrated power supply

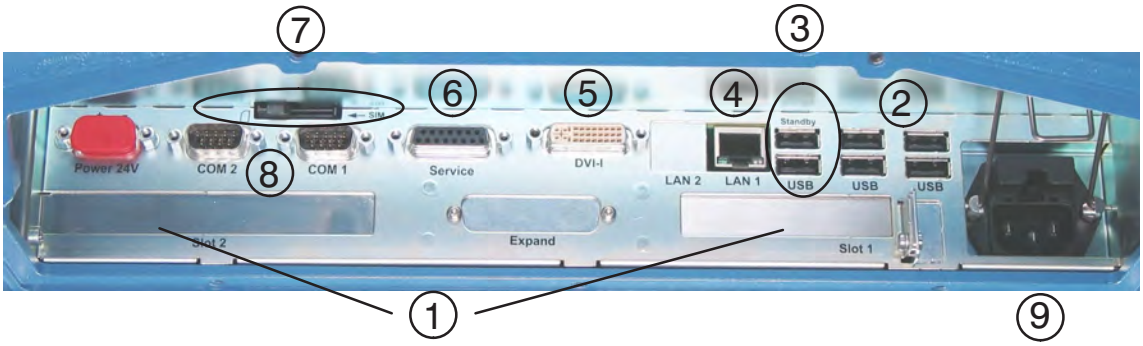


Fig. 26: C19-N10C Connectors with option integrated power supply

① Free card slots PCI/PCI Express (Slot 1 Low profile PCI)
② Two USB 2.0 ports
③ Two USB 2.0 ports with standby supply
④ One LAN port with status LEDs
⑤ DVI monitor port
⑥ Service port
⑦ SIM card slot
⑧ Two COM interface ports
⑨ Mains input connector with fuses

Warning
Connect and disconnect all device connectors only when de-energized

9.3 Connectors C12

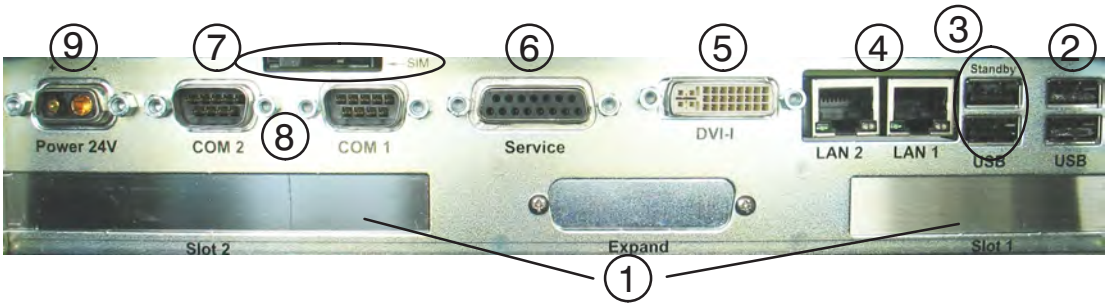


Fig. 27: C12-N10F Connectors

① Free card slots PCI/PCI Express (Slot 1 Low profile PCI)
② Two USB 2.0 ports
③ Two USB 2.0 ports with standby supply
④ Two LAN ports with status LEDs
⑤ DVI monitor port
⑥ Service port
⑦ SIM card slot
⑧ Two COM interface ports
⑨ Power supply

Warning
Connect and disconnect all device connectors only when de-energized

9.4 Description of the USB 2.0 ports with standby supply

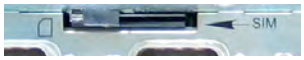
Two of the external USB ports (in standby mode) are connected to the power supply ex works. This function can be deactivated in NSetup.

Fig. 28: Standby USB

see Chapter 11.3

If standby mode is deactivated, the two USB ports are supplied with power in the usual way.

9.5 SIM card



This slot is intended for SIM cards that are required for certain modules (e.g. GPRS or UMTS data cards).

The Slot is connected with the upper Mini PCIe-Base.

Insert the SIM card as shown in the picture (Fig. 29) with chip-side up in the slot.

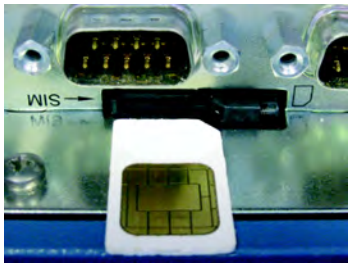


Fig. 29: Insert SIM card

9.6 LAN port

Fig. 30: LAN LEDs

Left LED(green)	Right LEDs (green /yellow)
Lights up when connection has been established	Data speed 1 GBit green
Flashes during data transfer	Data speed 100 MBit yellow
	Data speed 10 MBit off

9.7 SATA Mode AHCI

AHCI is a standard for Serial ATA controllers and enables the software to communicate with these controllers, enabling fast access to hard drive data, among others by using NCQ.

AHCI is set as default in the BIOS. Older operated systems (e.g. Windows XP) do not support AHCI mode by default. For this reason, corresponding AHCI drivers must be loaded when installing the operating system (cf. ”F6 Disc” in Windows XP) so the hard drive is detected.

Alternatively there is also the possibility to change to the older IDE mode in the BIOS under ”Integrated Peripherals” and ”SATA Device”. However, this renders the advantages of AHCI unusable.

ⓘ noax preinstalled operated system does not support the IDE mode.

ⓘ The corresponding AHCI drivers are available from our support.

ⓘ An additional rearrangement of the hard disk mode to RAID mode isn’t supported correctly by the already installed driver.
In addition if a second hard disk will now be plugged, the first hard disk will lose the complete data.

⚠ **Precaution**
The RAID mode is not possible by the mainboard variant N10C and a second hard drive cannot be plugged.

9.8 PCIe description

Danger
PCIe cards must only be connected to the main board using adapter boards (backplanes). Slots directly on the main board have a special pin-out. Connecting cards directly could cause irreversible damage to the connected card or the main board.

Depending on chosen equipment the Industrial-PC disposes about up to two plug—in places for PCI express cards.

You can connect cards with a x1, x4, x8 or x16 connector to the right backplane with a x16 slot (slot2), even if they do not completely use the x16 slot.

You can connect cards with a x1, x4 and x8 connector to the left backplane with a x8 slot (slot1), even if they do not completely use the x8 slot.

The right x16 slot (slot 2) is set as default ex works with one PCIe-Lane (x1).The following configurations can optionally be set:

- x1 (1 lane)
- x2 (2 lanes)
- x4 (4 lanes)

All these configurations can be changed in NSetup.

see Chapter 11.3

The x16 slot is either assigned with 1 to 4 lanes (see above).
PCIe cards that are operated with less lanes than they actually have can be operated with one lane according to the specification, e.g. x16 card with x1 configuration.
However, if more lanes are used, compatibility depends on the cards e.g. x16 card with x4 configuration.
In practice though, the majority of PCIe cards support x2 and x4 configurations.

In case of the x4 configuration, both PCI Express Mini cards are deactivated.

9.9 Information about supply-output over serial interfaces

With a special adjustment it is possible to use Pin 4 or Pin 9 of the serial interface module on COM1 or COM2 to supply an 5V or 12V output for external devices. To do the adjustment you have to open the Industrial PC and dissasemble the interface module.

Serial interfaces with activated supply output have to be marked in the connector area.

If the supply output of a serial interface is activated by factory it is also marked in the connector area.

	Optional labeling of serial interfaces COM1 / COM2 :
P4/5V	RS232 interface with 5 V supply-voltage output (5 V at Pin 4)
P4/12V	RS232 interface with 5 V supply-voltage output (12 V at Pin 4)
P9/5V	RS232 interface with 5 V supply-voltage output (5 V at Pin 9)
P9/12V	RS232 interface with 5 V supply-voltage output (12 V at Pin 9)
RS422DP	RS422DP interface with 5 V and 12 V supply-voltage output (Dual Power: 12 V at Pin 4 and 5 V at Pin 9)
RS485DP	RS485DP interface with 5 V and 12 V supply-voltage output (Dual Power: 12 V at Pin 4 and 5 V at Pin 9)
RS232ISO	RS232 interface galvanic isolated (No supply voltage at Pin 4 or Pin 9)

9.10 RS232 Interface module

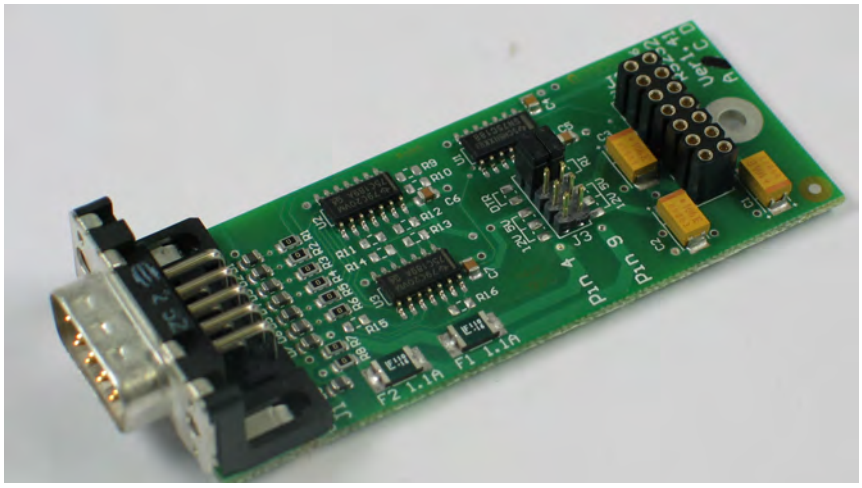
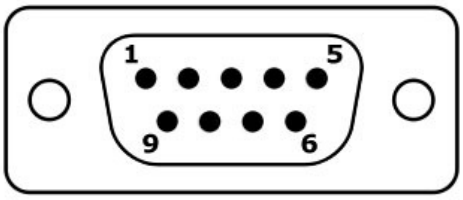


Fig. 31: RS232 Interface module

For the technical specification see chapter 14.9.4.

9.10.1 Connector pinout

Warning
All interface signals (incl. GND) are NOT galvanic isolated from the enclosure ground and the power supply voltages on the mainboard. Please pay attention to the safety information.

DSUB connector, male, 9pol. – frontview	Pin	Signal	Typ
	1	DCD (Data Carrier Detect)	In
	2	RxD (Receive Data)	In
	3	TxD (Transmit Data)	Out
	4	DTR (Data Terminal Ready)	Out
	5	GND (Ground)	–
	6	DSR (Dataset Ready)	In
	7	RTS (Request To Send)	Out
	8	CTS (Clear To Send)	In
	9	RI (Ring Indicator)	In

9.10.2 Power supply for RS232 devices

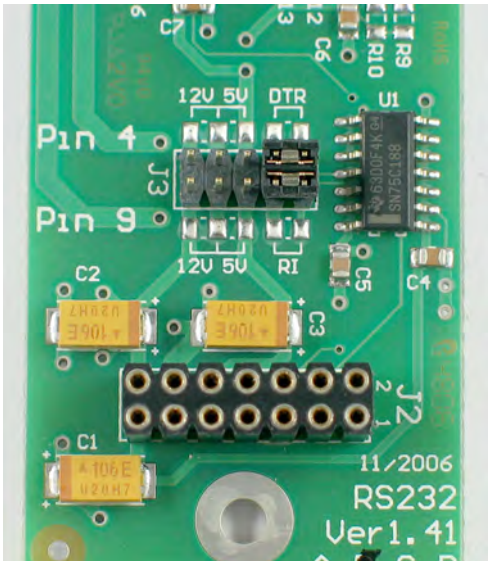


Fig. 32: Jumper on the interface module

This module provides power supply for external RS232 devices via connector pins:

- Pin 9 (RI) and/or Pin 4 (DTR)
- 5V or 12 V output power

External power supply can be set via jumper J3.

Default setting:
(if no other label in the IPCs connector area)

- Pin 4 = DTR
- Pin 9 = RI

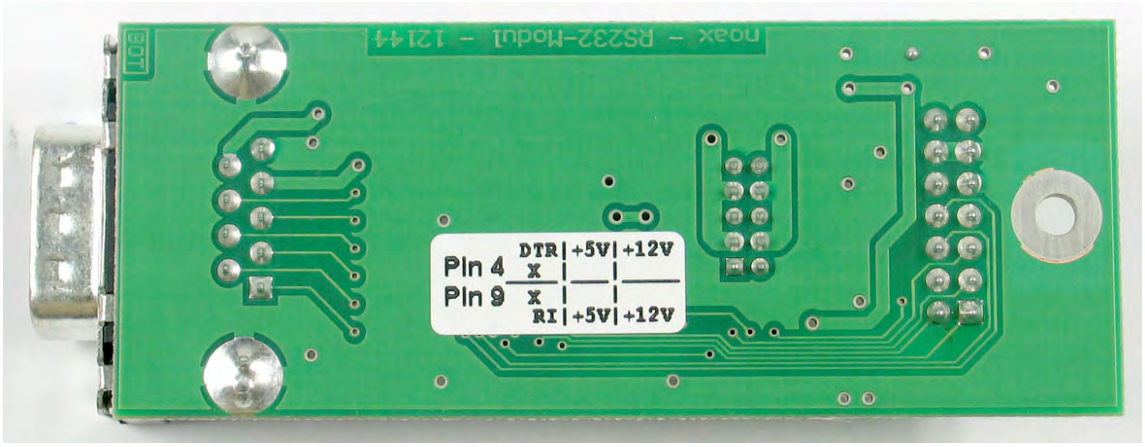


Fig. 33: RS232 interface module bottom side with setup label (visible side)

ⓘ Serial interface modules with activated supply-output have to be marked in connector area. If the supply-output of a serial interface is activated by factory it is also marked in the connector area.

10 Operation

10.1 Display and operation elements S12 and C15

All display and operation elements are located on the control panel on the front at the right-hand edge of the enclosure. The control panel consists of buttons, indicator lights (LEDs) and an ambient light sensor (ALS).

10.1.1 General button information

- ▶ The INPUT LED lights up/flashes when a button is pushed.
- ▶ Buttons should be pushed in the center of their respective symbol.

ⓘ Operation and display element functions can be changed, limited or deactivated using the setup software “NSetup”. The following overview describes the functions in their factory default setting.

10.1.2 Display and operation elements S12

LED	Function
POWER (green)	Shines when the Industrial PC is turned on, flashes in standby mode
INPUT (yellow)	Lights up when a valid input is made
HDU (red)	Indication of hard disk activity
OK (green)	Shines when the Industrial PC ist operational. All systems monitored by the MCU are working properly.
ERROR (ret)	Shines when an error or critical event occurs with the Industrial PC hardware

Button	Function
Brightness +	Increases brightness os display backlight
Brightness –	Reduces brightness os display backlight
Contrast +	Not used
Contrast –	Not used
ON-OFF I	Switches the Industrial PC on Switches the display backlight on Hard reset initiation Wake up from standby
ON-OFF O	Switches the Industrial PC off Switches the display backlight off Software-Shutdown initiation

Fig. 34: Display and operation elements

📖 Please refer to Chapter 11 for information regarding the operation and function of the setup Software “NSetup”.

10.1.3 Operation and display elements C15

LED	Function
POWER (blue)	Shines when the Industrial PC is turned on. Flashes in standby mode.
INPUT (yellow)	Lights up when a valid input is made
OK (green)	Shines when the Industrial PC is operational All systems monitored by the MCU are working properly
ERROR (red)	Shines when an error or critical event occurs with Industrial PC hardware.
ALS	The ambient light sensor is used to measure the intensity of the ambient light

Button		Function
–	(Minus)	Reduces the brightness of display backlight
+	(Plus)	Increases brightness of display backlight
F	(Function)	Function button for performing special software functions
⏻	(Ein/Aus)	Switches the Industrial PC on/off and wake up from standby. Switches the display backlight on and off, hard reset or software shutdown initiation

Fig. 35: Operation and display elements C15

10.1.4 Ambient light sensor (ALS)

An ambient light sensor is located in the C15 operator console. Its purpose is to adjust the brightness of the display backlight to the available ambient light. It can be turned on or off using the setup software to individually adjust the brightness.

The ambient light sensor is not enabled at delivery condition. Please use the “NSetup” software tool to activate the sensor and to configure the settings.

ⓘ See Chapter 11 in this manual or visit our website at www.noax.com for further information about the “NSetup” software tool.

10.2 Operation and display elements C12 , C19 and C21

All display and operation elements are located on the control panel on the front of the enclosure. The control panel consists of six buttons, four indicator lights (LEDs) and an ambient light sensor (ALS). The function keys (F1 to F3) are also located at the bottom of the front.

10.2.1 General button information

- ▶ The INPUT LED Lights up/flashes when a button is pushed.
- ▶ Buttons should be pushed in the center of their respective symbol.

ⓘ Operation and display element functions can be changed, limited or deactivated using the setup software “NSetup”. The following overview describes the functions in their factory default setting.

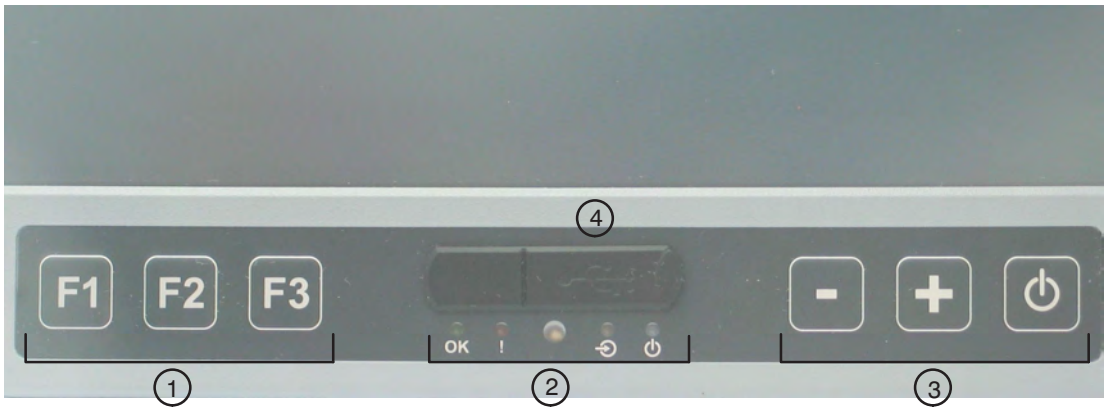


Fig. 36: Operation and display elements C12, C19, C21

① Function key F1 - F3
② LED ares (LEDs for OK, ERROR, INPUT, POWER), the ambient light sensor (ALS) in the center
③ Button area for device control (minus, plus and on/off)
④ USB-Port

10.2.2 Ambient light sensor (ALS)

An ambient light sensor is located in the operator console. Its purpose is to adjust the brightness of the display backlight to the available ambient light. It can be turned on or off using the setup software to individually adjust the brightness.

The ambient light sensor is not enabled at delivery condition. Please use the “NSetup” software tool to activate the sensor and to configure the settings.

10.2.3 LED area

Leuchtdiode	Funktion
OK (green)	Shines when the Industrial PC is operational. All systems monitored by the MCU (see Chapter 11.1) are working properly. Flashes in standby mode.
! (red)	Shines when an error or a critical event occurs with the Industrial PC hardware.
⊖ (yellow/red)	Lights up yellow when a valid input (has priority) is made. Lights up red in case of a hard disk activity
⏻ (blue)	Shines when the Industrial PC is turned on.

When the ERROR LED is displayed continously, the OK, INPUT and POWER LEDs will no longer have their normal function and will display an error code. Possible LED states are “off”, “slow blinking”, “fast blinking” and “on” (see Chapter 13).

10.2.4 Button area for device control

Button	Function
– (Minus)	Reduces brightness of display backlight
+ (Plus)	Increases brightness of display backlight
⏻ (On/Off)	Switches the Industrial PC on/off and wake up from standby. Switches the display backlight on and off Hard reset or software shutdown initiation

10.2.5 Front USB-Port

The Front USB-Port can be enabled or disabled via NSetup software.

Penetrating liquids can be prevented through the mounted rubber cover and an addtional internal USB-Port seal.

ⓘ Defaultsetting is enabled.

Precaution
When not in use seal the Front USB-Port with the rubber cover.

10.2.6 Function key F1 - F3

Each function key F1 - F3 simulates an individual keystroke like a standard PC keyboard. You can customize the key- and controlcodes codes with the “NSetup” software tool.

See the detailed description of the function keys in Chapter 10.3.5.

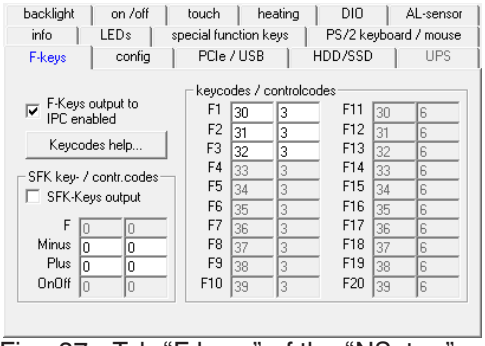


Fig. 37: Tab “F-keys” of the “NSetup” software tool for the IPC type C12, C19, C21

10.3 Operation and display elements S15-G2 and S19

All display and operation elements are located on the control panel on the front of the enclosure. The control panel consists of buttons, indicator lights (LEDs) and an ambient light sensor (ALS). The left (F1 to F10) and right (F11 to F20) keyrows can be used for individual programmable function keys.

10.3.1 General button information

- ▶ The INPUT LED lights up/flashes when a button is pushed.
- ▶ Buttons should be pushed in the center of their respective symbol.

ⓘ Operation and display element functions can be changed, limited or deactivated using the setup software “NSetup”. The following overview describes the functions in their factory default setting.

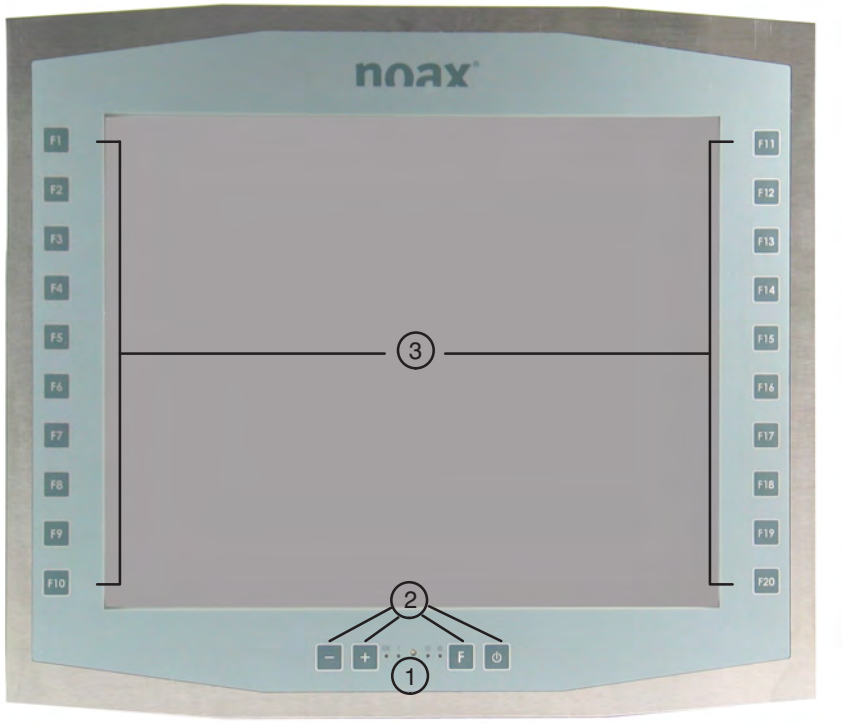


Fig. 38: Operation and display elements S15-G2 and S19

① LED ares (LEDs for OK, ERROR, INPUT, POWER), the ambient light sensor (ALS) in the center
② Button area for device control (minus, plus, funktion and on/off)
③ Function keys left (F1 - F10) and right (F11 - F20)

10.3.2 Ambient light sensor (ALS)

An ambient light sensor is located in the operator console. Its purpose is to adjust the brightness of the display backlight to the available ambient light. It can be turned on or off using the setup software to individually adjust the brightness.

The ambient light sensor is not enabled at delivery condition. Please use the “NSetup” software tool to activate the sensor and to configure the settings.

10.3.3 LED area

LED	Funktion
OK (green)	Shines when the Industrial PC is operational. All systems monitored by the MCU are working properly. Flashes in standby mode.
! (red)	Shines when an error or a critical event occurs with the Industrial PC hardware.
⏀ (gelb)	Lights up when a valid input is made.
⏻ (blau)	Shines when the Industrial PC is turned on.

When the ERROR LED is displayed continously, the OK, INPUT and POWER LEDs will no longer have their normal function and will display an error code. Possible LED states are “off”, “slow blinking”, “fast blinking” and “on” (see Chapter 13).

10.3.4 Button area for device control

Button	Function
– (Minus)	Reduces brightness of display backlight
+ (Plus)	Increases brightness of display backlight
F (Function)	Function button for performing special software functions
⏻ (On/Off)	Switches the Industrial PC on/off and wake up from standby. Switches the display backlight on and off Hard reset or software shutdown initiation

10.3.5 Function key F1 - F20

Each function key F1 - F20 simulates an individual keystroke like a standard PC keyboard. You can customize the key- and controlcodes codes with the “NSetup” software tool.

The keycode specifies a key to be pressed (e.g. for key “1” is the keycode 30), the controlcode simulate an additional keypress like ctrl-, shift- alt- or win-key (you can add the controlcodes for multible keypess like ctrl+alt = 5).

For the popular key combination ctrl+alt+del you have to set the key code 76 (for del) and the controlcode 5 (for ctrl+alt).

Function key factory default settings:

Function key	keycode / Controlcode (factory)
F1—F10	Keycode 30 — 39 (= Numkey 1—0) Controlcode 3 (= Shift + Alt).
F11—F20	Keycode 30 — 39 (= Numkey 1—0) Kontrollcode 6 (= Strg + Alt).

ⓘ For more informations about the individual programmable keycodes press the button “Keycodes help” (tab “F-Keys”). An additional window shows the key- and controlcodes to use with the function keys.

📖 For further information and the latest version of setup software “NSetup”, please check the download center at section “Service and Support” at our website www.noax.com or Chapter 11.

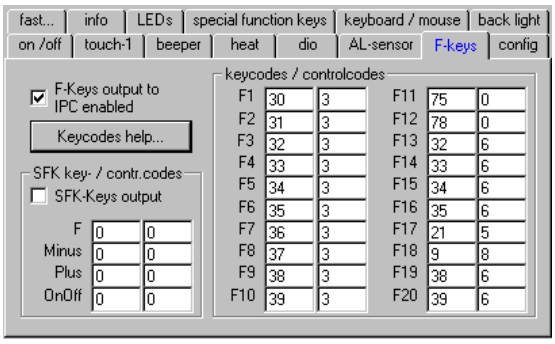
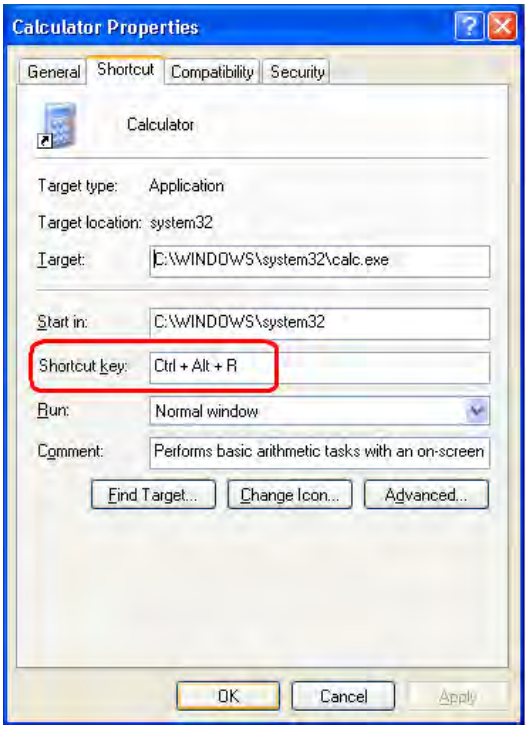


Fig. 39: Tab “F-keys” of the “NSetup” software tool

The example on the left side shows the configuration for the F11 frontpanel function key with the keycode “page up” and F12 is assigned as “page down”-key (without control codes).

Against the default setting, F17 ist configured with an “ctrl+alt+R” key combination (keycode 22 and controlcode for “ctrl” 1 + “alt” 4 = 5).

The function key F18, in this example, has the keycode “F” (9) together with the control code for the “Win” key (8). This key combination opens the “windows” find dialog.



It is possible to assign a shortcut key in the Windows operating system to support a quick programm start via keyboard.

A keystroke combination must be configured in the Properties window or in the shortcut (press the right mouse key directly at the icon –> Properties).

The left picture shows the Calculator properties window.

In the shortcut key field you can enter either the key sequence “ctrl+alt+R” or press the previous configured F17 key (see Fig 39).

Press the “Apply” buttom to safe these settings.

By pressing the F17 key the Windows PC is automatically started.

Fig. 40: Example of a key combination in the Calculator Properties window

ⓘ The centred F-key (see 10.3.4) can also be configured like the function keys F1 - F20. Please activate the “SFK-Keys output” (see Fig. 39).

ⓘ You can find further detailed information about setting up the function keys in the product information “Product information Frontpanel S15, S19 and keyboard” which you can download from the download center at our website.

10.4 Factory default settings for operation elements

10.4.1 S12 devices

Function	Default factory setting
Switching on the Industrial PC	▶ Press [ON-OFF I] button for a **minimum of 1 second**
Switching off the Industrial PC	▶ Press [ON-OFF O] button for a **minimum of 6 seconds** (until it turns off).
Setting brightness of display backlight	▶ Briefly press the [Brightness –] or [Brightness –] buttons to change the brightness by one level ▶ To change the brightness over a wider range, **press and hold down** the [Brightness –] or [Brightness –] buttons
Switching display backlight on	▶ **Briefly** press [ON-OFF I] button
Switching display backlight off	▶ **Briefly** press [ON-OFF O] button
Shutting off the software	▶ Press and hold down the [ON-OFF O] button. (intermittent beep, Power LED flashes) Release after **3 seconds** (fast, intermittent beep, Power LED flashes faster) **This function is only available on operating software with ACPI-support**
Resetting the mainboard	▶ Press the [ON-OFF I] button for more than **3 seconds**.
Touch cleaning mode	▶ **Not avaliable on this device type**

10.4.2 C12, C15, C19, C21, S15-G2 and S19 devices

Function	Default factory setting
Switching on the Industrial PC	▶ Press [On/Off] button for a **minimum of 1 second**
Switching off the Industrial PC	▶ Press [On/Off] button for a **minimum of 6 seconds** (until it turns off).
Setting brightness of display backlight	▶ Briefly press the [+] or [−] buttons to change the brightness by one level ▶ To change the brightness over a wider range, **press and hold down** the [+] or [−] buttons
Switching display backlight on / off	▶ **Briefly** press [On/Off] button
Shutting of the software	▶ Press and hold down the [On/Off] button. (intermittent beep, Power LED flashes) Release after **3 seconds** (fast, intermittent beep, Power LED flashes faster) **This function is only available on operating software with ACPI-support**
Resetting the mainboard	▶ Press the [On/Off] button and the [−] together for more than **3 seconds**.
Starting with factory default settings (default-Setup)	▶ Press and hold both the [F] or [F1] and [+] buttons, and then connect the power supply. (OK LED flashes)
Switching touch cleaning mode on / off (touch function deactivated)	▶ Press down the [F] or [F1] and [+] and [−] buttons together for longer than **1 second** (INPUT LED flashes). For more information, please see chapter 12.

10.5 Display backlight

The display backlight is dimmed to a preset lower brightness level 3 minutes after the last button is pressed or touch panel is used.

Function	Default factory setting
Dimming	▶ 3 minutes after the last button is pressed or touch display is used
Reactivation	▶ Press the ON/OFF button or the ON-OFF I button ▶ Touch the touch display

ⓘ You can reactivate the display backlight by briefly pressing the [On/Off] or the [ON-OFF I] button.

10.6 Function “Touch Power On”

This function allows users to switch on the Industrial PC by specifically pressing the touch panel. Two previously defined pressure points must be pressed and held in the right sequence and within a certain time.

This function was developed especially for units which do not have a control panel.

Fig. 41: Switching on the device via the touch panel

Procedure and sequence of steps to switch the device ON via the touch surface (factory setting):

1. Press and hold the top left corner
2. Within 3 seconds press and hold the bottom right corner

Now there is an intermittent beep and the POWER LED should start to flash if there is a control panel. The device will switch on after 3 seconds

Precaution
The function immediately aborts if the correct sequence of pressure points is not adhered to, the pressure points are released during the switching-on period or the first pressure point is pressed for longer than the time specified in the timeout period. In this case release the touch surface and restart with the first pressure point.

ⓘ The graphical setup software “NSetup” (GUI version, version 3.0 or higher) is used to activate or deactivate this function, calibrate the pressure points and for adjustment of the switching on times and the timeouts.

ⓘ You can find the “NSetup” tool and other detailed information about the function “Touch Power On” on our website at www.noax.com

11 Setup software “NSetup”

11.1 The MCU in the noax Industrial PC

All noax Industrial PCs contain a microcontroller (MCU = micro controller unit) on the motherboard along with the CPU. The MCU monitors important system functions and also carries out additional control functions.

The MCU constantly monitors:

- All supply voltages (Input voltage, 12V, 5V, core voltages ...)
- System temperatures
- Fan functions

Warning
If a monitored parameter exceeds the specified values, an error message is display via the control panle LEDs or the system is immediately switched off in extreme cases. These safety functions are designed to minimize damage to the Industrial PC (e.g. from excessive internal temperature).

11.2 Initial operation

At the initial operation you will find the NSetup-Software in the following path:

`C:\install\software\NSetup`

Please choose the `NSetupUS.exe` for the english version.

An installation is not necessary. You can start the software directly. Through a desktop shortcut you can start the software in an easy way.

11.3 Settings via setup software “NSetup”

The functions controlled by the MCU can be set using the setup software “NSetup” that has been specially designed for noax Industrial PCs.

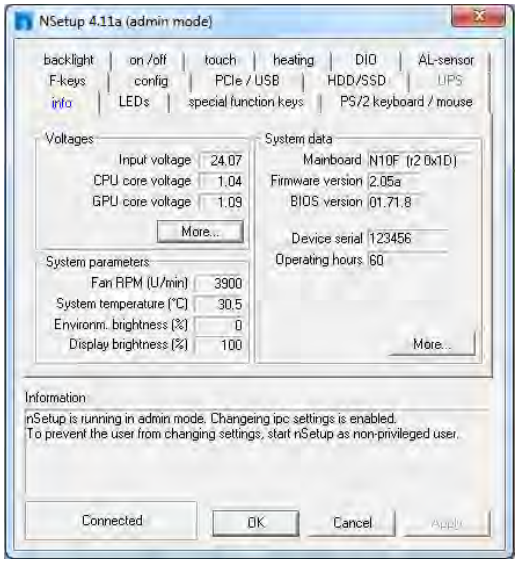


Fig. 42: GUI Setup software “NSetup”

The MCU parameters are clearly laid out and can be easily set using the Setup software user interface.

For example, you can set:

- Startup and shutdown functions
- Touchsettings
- Functions for the LEDs und buttons in the operator console
- Control for display backlight
- Function “Touch Power On”
- PCIe configuration
- USB standby function

ⓘ A command line version of the setup software for DOS or Windows operating systems is also available on request.

ⓘ **For further information and the latest version of setup software “NSetup”, please check the download center at section “Service and Support” on our website www.noax.com**

12 Maintenance and cleaning the Industrial PCs

12.1 General information

1. Switch off device and disconnect it from power supply
2. Use a commercially available plastic cleaner and a soft, lint-free cleaning cloth
3. Do not apply the cleaning agent directly to the Industrial PC. First apply to the cleaning cloth.
4. Only clean with moist cloth (not wet – exception IP65 devices), and do not get cleaning agent underneath the touch gasket
5. Gently clean surfaces and display window
6. Completely remove any cleaning agent from the device with a clean cloth.

ⓘ For added protection of the touch surface against mechanical wear and tear, we also offer special touch-sensitive protective film which can be easily replaced.

ⓘ The IP protection level IP69K is based on the following standardized minimum requirements:176°F (80°C), 80-100 kN/m^2, 14-16 litres per minute and 3.9- 5.5 inch distance (Depending on the complete system: IPC with a corresponding connector cover)

⚠ **Warning**
Do not clean the front (display, touch, operating elements) with products containing abrasive substances. This will scratch and dull the surface.

⚠ **Warning**
Do not use high pressure damp or cleaning agents containes concentrated mineral acids, concentrated alkali leach, benzyl alcohol or methylene chloride for cleaning the font of the Industrial PC .

12.2 Touch cleaning mode only C15, S15-G2 and S19 devices

The cleaning mode for the touch surface is activated by pressing the [F], [+] and [–] buttons on the control panel (press all three buttons for more than 1 second).
The yellow INPUT LED will flash as confirmation.

The touch surface can now be cleaned: When it is touched, no data is sent to the operating system.

To deactivate the touch cleaning mode, press the [F], [+] and [–] buttons once more.

ⓘ This cleaning mode can be used only at equipment with the buttons [F], [+] und [–] of the using console.

12.3 Touch cleaning mode only C12, C19 and C21 devices

The cleaning mode for the touch surface is activated by pressing the [F1], [+] and [−] buttons on the control panel (press all three buttons for more than 1 second).
The yellow INPUT LED will flash as confirmation.

The touch surface can now be cleaned: When it is touched, no data is sent to the operating system.

To deactivate the touch cleaning mode, press the [F1], [+] and [−] buttons once more.

ⓘ This cleaning mode can be used only at equipment with the buttons [F1], [+] und [−] of the using console.

13 Fault detection and correction

This section provides information on the action needed when the device malfunctions.

ⓘ If any of the following internal faults are present the devices will not switch on or will switch off automatically:

- Input voltage too high / too low
- Internal voltage too high / too low
- System temperature too high / too low

13.1 N10 error codes

When an error occurs, the integrated MCU displays an error code via the control panel LEDs which provides information about the error type.

When the ERROR LED is displayed continously, the OK, INPUT and POWER LEDs will no longer have their normal function and will display an error code. Possible LED states are “off”, “slow blinking”, “fast blinking” and “on”.

Description	Error-LED (red)	OK-LED (green)	INPUT-LED (yellow)	PWR-LED (blue)
Input voltage for IPC to low (1)	on	off	slow blinking	off
System temperature to low	on	on	off	off
System temperature to high	on	off	slow blinking	slow blinking
fan does not operate	on	on	off	slow blinking
CPU core voltage incorrect	on	on	on	off
Internal 3,3 V power supply incorrect	on	on	slow blinking	off
Internal 5 V power supply incorrect	on	on	slow blinking	on
Internal 12 V power supply incorrect	on	on	slow blinking	slow blinking
DIO-/heating module incorrect	on	slow blinking	slow blinking	fast blinking
System temperature limitation	slow blinking	irrelevant	irrelevant	irrelevant

(1) Input voltage to low:
As soon as the device is supplied with current, the input voltage is supervised. If the voltage is faulty at this time, the device cannot be switched on. In this case check the external table power supply or the electrical circuit providing the device. If the input voltage exceeds the limits at normal operation, the device also switches off.

ⓘ slow blinking: 1.5x/s, fast blinking: 10x/s

Please make a note of each LED’s state (=error code), type and serial number of the device and contact the noax hotline under:

Hotline Europe		Hotline North America	
Tel.	**+49 (0) 8092 8536 33**	**Tel.**	**+1 704 992 1606**
Fax	**+49 (0) 8092 8536 55**	**Fax**	**+1 704 992 1712**
eMail:	**hotline@noax.com**	**eMail:**	**hotline@noaxna.com**

13.2 Behavior at limit temperatures

The device cannot be switched on while the system inner temperature is too high. During the working process the system switches first in a mode with the lowest heat generation when the temperature exceeds the safe limit. In doing so the backlight will be dimmed.
This mode can be recognized by the blinking Error-LED. In this case please check, whether a sufficient air circulation is given at the ribbed equipment enclosure rear and the device isn't covered by objects. If the temperature falls, the device switches automatically over to the normal operation.
However the temperature exceeds the upper limit again, the device switches itself completly off and can only be switched on after cooling down sufficiently.

Also the device cannot be switched on while the system inner temperature is too low and will be disabled.

13.3 Repairs

Please observe the following to ensure fast and smooth repairs:

- Please use the service form available on our website at **www.noax.com**. It can be downloaded as a PDF or Wordfile. Please fill out the form as completely as you can, and include it with the return shipment.
- Before shipment, you should backup the hard drives of your device. **We are not liable for any accidental loss of your data.**
- If your system is password protected, please delete the "Administrator" password or provide it to us. Otherwise, we will reset the password if necessary.
- Please package the device properly to ensure safe transport. Use the original packaging if possible. **We are not liable for any damages that may occur during transport.**
- We recommend using UPS Standard for shipping. The shipment must be prepaid. We will also accept unpaid UPS Standard shipments during the warranty period. We do not accept extra services such as express services, etc.
- In emergencies, we do offer loan equipment for the duration of the repairs for a small fee. Please check with our hotline.

13.4 FAQ - Frequently Asked Question

Our FAQ list can be found on our website **www.noax.com** under **Service and Support**. This is the first place to check when you have a problem.

13.5 Download Center

The technical download area can be found on our website **www.noax.com** under section “**Service and Support”**.

There you can find:

- Manuals and documentations for the Industrial PC and additional accessory
- Drivers e.g. for chipset, graphics controller, network controller
- Software e.g. setup software “NSetup”

14 Technical Data

Precaution
Subject to change without notice!

Precaution
Built-in options may affect the technical data of the Industrial PC.
For these data refer to the corresponding documentation.

14.1 General information for the Industrial PC

14.1.1 Environmental conditions

Air circulation:	Unobstructed circulation of surrounding air / cooling air must be provided at the rear cooling fins
Ambient temperature for **storage and transport**:	−4°F to 140°F (−20°C to +60°C) and −22°F (−30° C) at devices with an extended temperature range
Humidity:	5 - 90% relative humidity, non-condensing

14.1.2 Touch

Method:	Resistive analog touch
Quality:	Up to 1 million touches at one location (2mm Touch Pen, 250g force, 2 activations per sec.) Up to 100 000 scrollings
Surface:	UV-resistant, acrylate-coated polyester foil (PET) on glass carrier (hard coated polyester)
Hardness:	3H pencil hardness

14.2 Technical Data for the Industrial PC enclosure types

14.2.1 Enclosure type C12

General	
Dimensions:	12.6 inch x 10.2 inch x 3.4 inch (W x H x D) 318 mm x 258 mm x 86 mm (W x H x D)
Weight:	approx. 9.9 lb (4.5 kg, depending on setup)
Front:	plastic front (painted)
Enclosure:	cast aluminium (structure paint finish)

Power supply requirements	
Rated input voltage:	+24 VDC
Input voltage range:	18 V to 30 VDC
Input current:	max. 5.0 A

Display type 'S' (21,3cm / 12,1 Zoll - SVGA)	
Size and type:	12,1 Zoll / TFT
Resolution:	SVGA 800x600
Maximum color depth:	24 Bit
Brightness:	typ. 450 cd/m^2
Horizontal viewing angle:	-80° / +80°
Vertical viewing angle:	-75° / +65°
Contrast ratio:	typ. 700:1

Display type 'X' (21,3cm / 12,1 Zoll - XGA)	
Size and type:	12,1Zoll / TFT
Resolution:	XGA 1024x768
Maximum color depth:	24 Bit
Brightness:	typ. 500 cd/m^2
Horizontal viewing angle:	-80° / +80°
Vertical viewing angle:	-80° / +80°
Contrast ratio:	typ. 700:1

Ambient temperature	
For operation:	32°F to 113°F (0°C to +45°C)
With option "extended temperature range":	−22°F to 113°F (−30°C to +45° C)

14.2.2 Enclosure type C15

General	
Dimensions:	17.5 inch x 13.9 inch x 4.9 inch (W x H x D) 444 mm x 354 mm x 124 mm (W x H x D)
Weight:	approx. 21.2 lb (9.6 kg, depending on setup)
Front:	Cycoloy C100HF
Enclosure and rear panel:	cast aluminium (structure paint finish)

Power supply requirements	
Rated input voltage:	+24 V DC
Input voltage range:	18 V to 30 V DC
Input current:	max. 5.0 A

Display type (38,1cm / 15 Zoll - XGA)		**“extended temperature range”**
Size and type:	38,1cm / 15 Zoll / TFT	
Resolution:	XGA 1024 x 768	
Maximum color depth:	24 Bit	
Brightness:	typ. 430 cd/m^2	typ. 400 cd/m^2
Horizontal viewing angle:	-70° / +70°	-65° / +65°
Vertical viewing angle:	-60° / +50°	-55° / +65°
Contrast ratio:	typ. 400:1	typ. 500:1

Ambient temperature	
For operation:	32°F to 113°F (0°C to +45°C)
With option “extended temperature range”:	−22°F to 113°F (−30°C to +45° C)

14.2.3 Enclosure type C19

General	
Dimensions:	17.8 inch x 15.4 inch x 4.6 inch (W x H x D) 452 mm x 390 mm x 117 mm (W x H x D)
Weight:	approx. 22.5 lb (10.2 kg, depending on setup)
Front:	plastic front (painted)
Enclosure:	cast aluminium (structure paint finish)

Power supply requirements	
Rated input voltage:	+24 VDC
Input voltage range:	18 V to 30 VDC
Input current:	max. 5.0 A

Power supply requirements with option integrated power supply	
Rated input voltage:	90 V bis 132 V / 187 V bis 264 V AC
Input voltage range:	47 - 63 Hz
Input current:	2.0 A

Display (48,3cm / 19 Zoll - SXGA)	
Size and type:	48,3cm / 19 Zoll / TFT
Resolution:	SXGA 1280 x 1024
Maximum color depth:	24 Bit
Brightness:	typ. 300 cd/m^2
Horizontal viewing angle:	-89° / +89°
Vertical viewing angle:	-89° / +89°
Contrast ratio:	typ. 1300:1

Ambient temperature	
For operation:	32°F to 113°F (0°C to +45°C)

14.2.4 Enclosure type C21

General	
Dimensions:	21.6 inch x 14.0 inch x 4.6 inch (W x H x D) 549 mm x 356 mm x 117 mm (W x H x D)
Weight:	approx. 24.9 lb (11.3 kg, depending on setup)
Front:	plastic front (painted)
Enclosure:	cast aluminium (structure paint finish)

Power supply requirements	
Rated input voltage:	+24 VDC
Input voltage range:	18 V to 30 VDC
Input current:	max. 5.0 A

Power supply requirements with option integrated power supply	
Rated input voltage:	90 V bis 132 V / 187 V bis 264 V AC
Input voltage range:	47 - 63 Hz
Input current:	2.0 A

Display (57,2cm / 21,5 Zoll - Full-HD)	
Size and type:	57,2cm / 21,5 Zoll / Widescreen TFT
Resolution:	Full-HD 1920 x 1080
Maximum color depth:	24 Bit
Brightness:	typ. 300 cd/m^2
Horizontal viewing angle:	-89° / +89°
Vertical viewing angle:	-89° / +89°
Contrast ratio:	typ. 5000:1

Ambient temperature	
For operation:	32°F to 113°F (0°C to +45°C)

14.2.5 Enclosure type S12

General	
Dimensions:	14.4 inch x 10.0 inch x 3.1 inch (W x H x D) 364 mm x 254 mm x 78 mm (W x H x D)
Weight:	approx. 13.3 lb (6.0 kg, depending on setup)
Front and enclosure:	stainless steel V2A (1.4301)

Power supply requirements	
Rated input voltage:	+24 VDC
Input voltage range:	18 V to 30 VDC
Input current:	max. 5.0 A

Display type 'S' (30,7cm / 12,1 Zoll - SVGA)	
Size and type:	30,7cm / 12,1 Zoll / TFT
Resolution:	SVGA 800x600
Maximum color depth:	24 Bit
Brightness:	typ. 450 cd/m^2
Horizontal viewing angle:	-80° / +80°
Vertical viewing angle:	-75° / +65°
Contrast ratio:	typ. 700:1

Display type 'X' (30,7cm / 12,1 Zoll - XGA)	
Size and type:	30,7cm / 12,1Zoll / TFT
Resolution:	XGA 1024x768
Maximum color depth:	24 Bit
Brightness:	typ. 500 cd/m^2
Horizontal viewing angle:	-80° / +80°
Vertical viewing angle:	-80° / +80°
Contrast ratio:	typ. 700:1

Ambient temperature	
For operation:	32°F to 104°F (0°C to +40°C)
With option "extended temperature range":	−22°F to 104°F (−30°C to +40° C)

14.2.6 Enclosure type S15

General	
Dimensions:	16.7 inch x 12.3 inch x 3.9 inch (W x H x D) 424 mm x 313 mm x 98 mm (W x H x D)
Weight:	approx. 18.7 lb (8.5 kg, depending on setup)
Front and enclosure:	stainless steel V2A (1.4301)

Power supply requirements	
Rated input voltage:	+24 V DC
Input voltage range:	18 V to 30 V DC
Input current:	max. 5.0 A

Display type (38,1cm / 15 Zoll - XGA)		**“extended temperature range”**
Size and type:	38,1cm / 15 Zoll / TFT	
Resolution:	XGA 1024 x 768	
Maximum color depth:	24 Bit	
Brightness:	typ. 430 cd/m^2	typ. 400 cd/m^2
Horizontal viewing angle:	-70° / +70°	-65° / +65°
Vertical viewing angle:	-60° / +50°	-55° / +65°
Contrast ratio:	typ. 400:1	typ. 500:1

Ambient temperature	
For operation:	32°F to 104°F (0°C to +40°C)
With option “extended temperature range”:	−22°F to 104°F (−30°C to +40° C)

14.2.7 Enclosure type S15-G2

General	
Dimensions:	16.5 inch x 14.2 inch x 5.3 inch (W x H x D) 418 mm x 360 mm x 133 mm (W x H x D)
Weight:	approx. 31.3 lb (14.2 kg, depending on setup)
Front and enclosure:	stainless steel V2A (1.4301)

Power supply requirements	
Rated input voltage:	100 V - 240 V AC
Input voltage range:	47 - 63 Hz
Input current:	2.0 A

Display type (38,1cm / 15 Zoll - XGA)		**“extended temperature range”**
Size and type:	38.1cm / 15 Zoll / TFT	
Resolution:	XGA 1024 x 768	
Maximum color depth:	24 Bit	
Brightness:	typ. 450 cd/m^2	typ. 400 cd/m^2
Horizontal viewing angle:	-80° / +80°	-65° / +65°
Vertical viewing angle:	-80° / +80°	-55° / +65°
Contrast ratio:	typ. 700:1	typ. 500:1

Ambient temperature	
For operation:	32°F to 104°F (0°C to +40° C), if “automatic backlight reduction“ is enabled 32°F to 95°F (0°C to +35° C), if “automatic backlight reduction“ is disabled
With option “extended temperature range”:	−22°F to 104°F (−30°C to +40°C)

14.2.8 Enclosure type S19

General	
Dimensions:	19.6 inch x 17.2 inch x 5.3 inch (W x H x D) 498 mm x 438 mm x 136 mm (W x H x D)
Weight:	approx. 46.8 lb (21.2 kg, depending on setup)
Front and enclosure:	stainless steel V2A (1.4301)

Power supply requirements	
Rated input voltage:	100 V - 240 V AC
Input voltage range:	47 - 63 Hz
Input current:	2.0 A

Display type (48,3cm / 19 Zoll - SXGA)	
Size and type:	48,3cm / 19 Zoll / TFT
Resolution:	SXGA 1280 x 1024
Maximum color depth:	24 Bit
Brightness:	typ. 300 cd/m^2
Horizontal viewing angle:	-89° / +89°
Vertical viewing angle:	-89° / +89°
Contrast ratio:	typ. 1300:1

Ambient temperature	
For operation:	32°F to 104°F (0°C to +40° C), if “automatic backlight reduction“ is enabled 32°F to 95°F (0°C to +35° C), if “automatic backlight reduction“ is disabled

14.2.9 Enclosure type P15

General	
Dimensions:	16.6 inch x 12.2 inch x 3.8 inch (W x H x D) 422 mm x 311 mm x 96 mm (W x H x D)
Cut out dimensions:	see Chapter 8.12
Weight:	approx. 15.2 lb (6.9 kg, depending on setup)
Front and enclosure:	stainless steel V2A (1.4301)

Power supply requirements	
Rated input voltage:	+24 V DC
Input voltage range:	18 V to 30 V DC
Input current:	max. 5.0 A

Display type (38,1cm / 15 Zoll - XGA)		“extended temperature range”
Size and type:	38,1cm / 15 Zoll / TFT	
Resolution:	XGA 1024 x 768	
Maximum color depth:	24 Bit	
Brightness:	typ. 430 cd/m^2	typ. 400 cd/m^2
Horizontal viewing angle:	-70° / +70°	-65° / +65°
Vertical viewing angle:	-60° / +50°	-55° / +65°
Contrast ratio:	typ. 400:1	typ. 500:1

Ambient temperature	
For operation:	32°F to 113°F (0°C to +45°C)
With option “extended temperature range”:	−22°F to 113°F (−30°C to +45° C)

14.3 Fuses

14.3.1 Enclosure type C12, C19, C21, S12, C15, S15 and P15:

The input fuse with the description F4 is located in a socket with protection cap nearby the power input plug on the mainboard.

Typ of fuse: Glass tube fuse, format 5 x 20mm,
with characteristic **5A slow blow** / **250V**

14.3.2 Enclosure type S15-G2, S19 and C19, C21 with option integrated power supply:

The holder for the two supply voltage fuses is located below the power cord connector. For removing push down the small black lever. Now you can pull the fuse holder out.

Type of fuses: 2 pcs. Glass tube fuse, format 5 x 20mm,
with characteristic **2A slow blow** / **250V**

Attention
Fuses should only be replaced by authorized personnel. The above technical data regarding fuses should be maintained at all times.
Please contact our service department (see Chapter 13.1) if you have any questions regarding fuses or replacement fuses.

Attention
Do not install the fuse with the descpription “F4” at devices with enclosure type S15-G2, S19 and C19, C21 with option intergrated power supply!
Exception: Devices without integrated power supply.

Warning
All other fuses on the mainboard are self-restoring and usually do not have to be replaced.

Warning
The Industrial PC must be disconnected from the power supply before the device is opened for upgrades or service work! Disconnect the power cord from the ”Power 24V” connector on the Industrial PC. It is not sufficient to just turn off the device.

14.4 Additional components requirements

All additional components (e.g. keyboards, printers, expansion cards etc.) have to be approved for industrial usage.

14.5 External table power supply

General	
Dimensions:	5.3 inch x 2.3 inch x 1.3 inch (W x H x D) 134 mm x 59 mm x 32 mm (W x H x D)
Weight:	approx. 1.1 lb (0.5 kg, incl. mounting bracket)
Enclosure:	plastic AF-303
Conformity:	CE, FCC

Power supply requirements	
Input voltage:	100 - 240 V ~
Input frequency:	50 - 60 Hz
Input current:	max. 1.5 A
Output voltage:	+24 V stabilized
Output current:	max. 3.0 A

14.6 External power supply IP65 (NEMA 4) (24V)

General	
Dimensions:	8.7 inch x 5.7 inch x 2.1 inch (W x H x D) 220 mm x 144 mm x 54 mm (W x H x D)
Weight:	approx. 1.1 lb (0.5 kg)
Enclosure:	coated aluminium
Conformity:	CE, FCC

Power supply requirements	
Input voltage:	100 - 240 V ~
Input frequency:	47 - 63 Hz
Input current:	max. 1.4 A
Output voltage:	+24 V
Output current:	max. 2,5 A

14.7 Mainboard (type N10C)

Processor (CPU) **Mainboard type N10C**	Intel Celeron M723 (1,20 GHz, 1 MB L2 Cache)
Chipset	Intel GS45 + ICH9M−E
Grafics controller	Intel GMA4500MHD (DirectX 10 3D-Grafic core)
Memory	2 GB, DDR3, 800 MHz, Dual Channel, up to 8 GB (2 SODIMM-socket)
Network	LAN 1 : Intel 82567 10 MBit / 100 MBit / 1000 MBit
Hard drive controller	Integrated Intel serial ATA II controller (3 Gb/s)
External interface	2 x RS232-Modul (COM1, COM2) optional RS422 or RS485 interface modules available
	4-6 x USB 2.0 (additional internal 2 x USB 2.0)
	1 x Network (Ethernet, RJ45)
	1 x DVI-I-monitor connector (analog monitors can be connected via a simple adapter)
	1 x Parallel port LPT (ECP, EPP or SPP compatibel)
	Floppy via USB
Expansion slots	2 x PCI express mini card (full mini card)
	2 x PCI / PCIe Slot 7.9 inch (200 mm) long
Mikroprocessor-controlled system management	Temperature monitoring
	Voltage monitoring
	Brightness control
	Power management
	Touchcontroller (panel control and recalibration)
	MCU setup
	20 function keys
	adjustable parameter via setup software

14.8 Mainboard (type N10F)

Processor (CPU) **Mainboard type N10F**	Intel Core 2 Duo SL9400 (2 x 1,86 GHz, 6 MB L2 Cache)
Chipset	Intel GS45 + ICH9M−E
Grafics controller	Intel GMA4500MHD (DirectX 10 3D-Grafic core)
Memory	2 GB, DDR3, 1066 MHz, Dual Channel, up to 8 GB (2 SODIMM-socket)
Network	LAN 1 : Intel 82567 10 MBit / 100 MBit / 1000 MBit LAN 2 : Intel 82574 10 MBit / 100 MBit / 1000 MBit
Hard drive controller	Integrated Intel serial ATA II controller (3 Gb/s)
External interface	2 x RS232-Modul (COM1, COM2) optional RS422 or RS485 interface modules available
	4-6 x USB 2.0 (additional internal 2 x USB 2.0)
	2 x Network (Ethernet, RJ45)
	1 x DVI-I-monitor connector (analog monitors can be connected via a simple adapter)
	1 x Parallel port LPT (ECP, EPP or SPP compatibel)
	Floppy via USB
Expansion slots	2 x PCI express mini card (full mini card)
	2 x PCI / PCIe Slot 7.9 inch (200 mm) long
Mikroprocessor-controlled system management	Temperature monitoring
	Voltage monitoring
	Brightness control
	Power management
	Touchcontroller (panel control and recalibration)
	MCU setup
	20 function keys
	adjustable parameter via setup software

14.9 Additional cards for the Industrial PC

Additional cards increase the interior temperature and lower the max. permissible ambient temperature.

ⓘ For Industrial PCs C12 and C19, C21 with option integrated power supply only Low profile PCI cards can be assembled in slot1.

14.9.1 Additional cards for PCI-Slot

ⓘ **The PCI slots comply to PCI specification Rev. 2.1**
5V and universal (3.3V & 5V) PCI cards with a length of 6.8 inch (173mm) can be used.

Max. current consumption for 3.3 V:	4.0 A
Max. current consumption for 5 V:	3.0 A
Max. current consumption for 12 V:	0.5 A
Max. current consumption for −12 V:	0.1 A

ⓘ **The Low profile PCI slots comply to PCI specification Rev. 2.1**
5V and universal (3.3V & 5V) Low profile PCI cards with a length MD1 of 4.7 inch (120mm) and MD2 of 6.6 inch (168mm) can be used.

Max. current consumption for 3.3 V:	4.0 A
Max. current consumption for 5 V:	3.0 A
Max. current consumption for 12 V:	0.5 A
Max. current consumption for −12 V:	0.1 A

⚠ **Warning**
The PCI card should not exceed a max. total power consumption of 15 W per slot. Observe maximum permissible currents at all times.

14.9.2 Additional cards for PCI Express Slot

ⓘ **The PCI Express slots comply to PCI specification Rev. 1.1.**

Max. current consumption for 3.3 V:	3.0 A
Max. current consumption for 12 V:	2.1 A

⚠ **Warning**
Together the PCI cards should not exceed a max. total power consumption of 25 W. Observe maximum permissible currents at all times.

14.9.3 Additional cards in the PCI Express Mini Card-Slot

Max. current consumption for 3.3 V:	1.1 A
Max. current consumption for 1.5 V:	0.3175 A

⚠ **Warning**
The PCI express mini card should not exceed a max. total power consumption of 3.0 W. Observe maximum permissible currents at all times!

14.9.4 RS232 Interface module

Technical specification	
Communication speed:	max. 115,2 kBaud
Input resistance:	min. 3kOhm, max. 7kOhm
Input voltage:	max. +/- 25V
Output voltage:	typ. +/- 10V
Short-circiut-current:	typ. +/- 30mA
Cable capacity:	max. 8,0 nF
Power supply for external devices:	5V oder 12V an Pin 4 und Pin 9, max. 1,0A

15 Waste disposal

It is not allowed to dispose the Industrial PC at the end of its life time via the normal garbage and not via the local waste collection centre. The disposal must be via the noax service department.

Please contact our service department for further information.

You do an important contribution to environment if you recycle or do material utilization or other utilization of old devices.

Disposal of used batteries / accumulators

You as enduser are legally bounded (battery regulation) to return all used batteries and accumulators; it is strictly forbidden to dispose it via the garbage!

Pollutant batteries / accumulators are marked with the corresponding symbols that point out the prohibition of disposal via the garbage.

The marking of the crucial heavy metal is Cd (cadmium), Hg (mercury) and Pb (lead).

Please deliver free of charge used batteries / accumulators to a recycling company in your local authority or contact the noax service department for further information.

You fullfill the legal regulations and do an important contribution to environmental protection.

Warning
Batteries and electrical devices are restricted to dispose via garbage.

16 Declarations of conformity

16.1 CE conformity

All noax Industrial PCs mentioned in this User Manual N10 complies with the requirements and regulations according to the CE conformity.

ⓘ The noax Industrial PCs with the following enclosure types are authorized for a Class A and therefore they may not be used in the living quarter:

- C12 – compact enclosure 12 inch

ⓘ Please check the declaration of conformity for your Industrial PC for detailed informations.

16.2 FCC conformity

All noax Industrial PCs mentioned in this User Manual N10 complies with the requirements and regulations according to the FCC conformity.

Additional information regarding to FCC Rules:

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.
- These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.
- This equipment generates, uses and can radiate radio frequency energy an, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
- Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

16.3 WEEE

noax Technologies AG. (ear Reg.-Nr. DE27359889) complies with the requirements of WEEE (Waste Electrical and Electronic Equipment) and support redemption of old devices free of charge (excluding transportation cost to noax Technologies AG.).

16.4 Declarations of conformity as download

All current declarations of conformity can be downloaded from the website **www.noax.com**, section "**Service & Support**" – **"Download Center" – "Certificates"**

There you can also find additional declarations of conformity for some Industrial PC e.g. GOST.

If you can't download the declarations of conformity please contact our hotline.

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