
# SECO PALLADIO 400 Modular Fanless Embedded PC Instruction Manual



Contents



## SECO PALLADIO 400 Modular Fanless Embedded PC

## Product Usage Instructions

- Choose a suitable location for mounting the PALLADIO system, ensuring it is within range of power and network connections.
- Securely mount the main unit using appropriate hardware and follow the provided installation guide for detailed steps.
- Power on the PALLADIO system and follow the on-screen instructions to set up basic configurations like language and time settings.
- Connect the system to your Wi-Fi network and perform any software updates if prompted.
- Use the touchscreen interface or remote control to arm/disarm the security system as needed.
- Customize settings such as alarm triggers, sensor sensitivity, and notification preferences through the system menu.

## Preliminary information

### Device description

- The device is a new Modular fanless embedded PC with 13th Gen Intel® Core™ processors.
- The technology developed by SECO S.p.A. can be used and applied in various fields, such as:

### Recipients

- This manual is intended for ordinary people and installers (expert users).

**IMPORTANT**
The user must read this manual before starting any kind of operation.

## Warranty

The warranty shall be voided in the event of:

- failure to comply with safety regulations;
- tampering with the device;

- changes to the safety conditions established by the Manufacturer in the device management software;
- improper use of the device;
- use of the device by untrained and/or unauthorized personnel or failure to respect duties, as indicated in the manual;
- changes or repairs carried out by the user without written authorization from the Manufacturer;
- partial or total failure to comply with the instructions;
- defects in the mains power supply (electricity, power supply, etc.);
- poor maintenance;
- use of non-original spare parts;
- exceptional events such as floods, fires (if not triggered by the device).

The complete warranty terms are set out in the sales contract.

**IMPORTANT**
The Manufacturer is not liable for improper use of the device.

## Identification

### Manufacturer identification

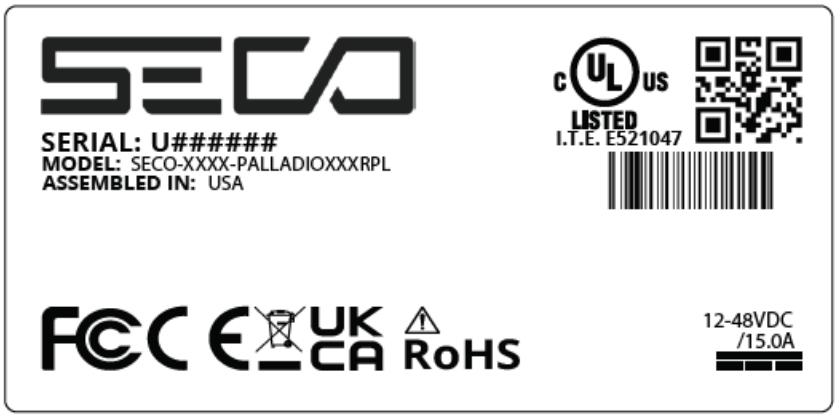
| | |
|---|---|
| MANUFACTURER | SECO S.p.A |
| Address | Via Achille Grandi n°20 52100 Arezzo – Italy Tel: +39 0575 26979<br>Fax: +39 0575 350210 |

### Device identification

| | |
|---|---|
| Device | PALLADIO |
| Serial number | U###### |
| Model | SECO-K843-PALLADIO400RPL SECO-K845-PALLADIO400RPL SECO-K847-PALLADIO400RPL SECO-K855-PALLADIO500RPL SECO-K857-PALLADIO500RPL SECO-K859-PALLADIO500RPL |
| Year of manufacturing | 2025 |

### Device identification plate

- The device is equipped with an identification plate located on the side. The plate features the device identification information to be reported to SECO S.p.A. if necessary, as shown in the table:




**CAUTION**
It is strictly forbidden to remove the identification plate and/or replace it with other plates.

## Technical specifications

### PALLADIO device hardware specifications

- The table below features the board hardware specifications:

| | |
|---|---|
| Processor | 13th Gen Intel® Core™ Processors (codename: Raptor Lake-P):<br>• Intel® Core™ i3-13100E, 3.3~4.4 GHz, 4 processor cores, 8 threads – 60 W TDP<br>• Intel® Core™ i3-13100TE, 2.1~4.1 GHz, 4 processor cores, 8 Threads<br>– 35 W TDP<br>• Intel® Core™ i5-13500E, 2.4~4.6 GHz, 14 processor cores, 20 Threads<br>– 65 W TDP<br>• Intel® Core™ i5-13500TE, 1.3~4.5 GHz, 14 processor cores, 20 Threads<br>– 35 W TDP<br>• Intel® Core™ i7-13700E, 1.9~5.1 GHz, 16 processor cores, 24 Threads<br>– 65 W TDP<br>• Intel® Core™ i7-13700TE, 1.1~4.8 GHz, 16 processor cores, 24 Threads<br>– 35 W TDP<br>• Intel® Core™ i9-13900E, 1.8~5.2 GHz, 24 processor cores, 32 Threads<br>– 65 W TDP<br>• Intel® Core™ i9-13900TE, 1.0~5.0 GHz, 24 processor cores, 32 Threads – 35 W TDP |
| Memory | Up to 32 GB SO-DIMM DDR4 2666 (Optional) |
| Graphics | Up to Intel® UHD graphics 770 (processor dependent) |
| Video Interfaces | 2x DisplayPort |
| Video Resolution | Up to 4K @60 Hz |
| Front I/O | 4x USB 3.2 Gen 2 Type-A 2xM2.5×0.45 threaded hole 2x Serial RS-232/422/485<br>20-pin GPIO terminal block (DIO, CAN bus, Ext. switch) 1x 3.5 mm audio jack<br>2x 3FF Mini-SIM slots<br>1x External fan connector<br>2x Hot-swap drive bays (optional, K802 & K804) 8x Status LEDs<br>1x Power button |

| | |
|---|---|
| Back I/O | 2x or 6x 2.5 GbE LAN (optional 2x PoE)<br>2x USB 3.2 Gen 2 Type-A with 1xM2.5×0.45 threaded hole 2x DisplayPort (full-size, DP 1.4, DP++, HDMI 1.4)<br>2x ModBay expansion slots (K802 & K804)<br>5-pin Power input |

| | |
|---|---|
| Mass Storage | 1x M.2 2280 (SATA)<br>1x M.2 2280 (PCIe Gen 4 x4; SATA)<br>2x SATA 2.5” drives (optional hot-swap) 1x M.2 2280 (PCIe Gen 4 x4) |
| Networking | Intel® embedded M.2 2230 802.11ac Wi-Fi BT 5.1 card with cables (optional)<br>Dual-band wireless 6.3” terminal PIFA antenna (optional)<br>2x 2.5 GbE LAN (2x PoE optional) |
| USB | 6x USB 3.2 Gen 2 ports |
| Audio | 1x 3.5mm audio |
| Serial Ports | 2x COM RS-232/422/485 ports |
| Other Interfaces | 5-Pin terminal block power input (12~48 VDC) 2x ModBay expansion 7-9.5mm ( optional)<br>1x GPIO terminal block (DIO, CAN, Ext. Switch) 2x 3FF Micro-SIM<br>1x power button<br>1x external fan connector<br>2x 2.5” hot-swap drives (optional) |
| Optional accessories | 4x RJ45 GbE LAN add-on kit 4x USB 3.0 add-on kit<br>2x RS-232 COM add-on kit |
| Power | 12~48 VDC<br>20~48 VDC (when configured with PCIe expansion 70W or above) |
| Operating System | Operating System (Clea OS by default) |
| Security | PTT in BIOS<br>TPM (optional) Watchdog timer |
| Operating Temperature | -40 to 70°C (w/ 35W CPU)*<br>-40 to 50°C (w/ 65W CPU)* |
| Storage Condition | -40°C to +85°C |
| Humidity | 0~95% relative, non-condensing |

| | |
|---|---|
| Dimensions | Palladio 400 : 240 x 82 x 267 mm<br>Palladio 500 : 240 x 143 x 267 mm |

**ATTENTION**

The values indicated refer to the maximum temperature of the environment of use of the device. It is the customer's responsibility to verify that the temperature remains within the admissible range indicated in this manual and, if necessary, adopt any passive cooling solution together with an application-dependent cooling system that can ensure that the heat sink temperature will not damage the device itself and/or the connected mechanical parts.

**ATTENTION**

- In case the transport conditions may exceed the temperature and time range indicated, corrective measures must be taken to avoid exposure of the device and its possible damage.

**Software Specifications**

- The software version released on the website **https://www.seco.com/it/products**, which is always updated and available, even in later versions.

**CE reference directives**
The device has been designed according to the following Directives:

- EN 60950-1 & EN 63268-1
- CISPR 32/EN 55032
- CISPR 35/EN 55035
- RoHS 3 (2015/863/EU)
- WEEE Directive (2012/19/EU)

The device also meets the requirements of the following standards:

- FCC 47 CFR Part 15 Subpart B (Class A) **
- IEC 60068-2-27
- IEC 60068-2-64
- MIL-STD-810
- Power Immunity According to E-Mark ISO 7637-2 & ISO 16750-2
- EN 50121-3-2
- IEC 60601-1-2, 4th ed.
- EN 60945, 4th ed.

**Product Documentation**
SECO S.p.A. places the device on the market, equipping and providing it with:

- CE marking as IT device

- FCC marking
- Declaration of Conformity*
- User manual*

These documents are available after a request to the manufacturer.

## FCC STATEMENT

This device complies with Part 15 of FCC Rules, Operation is Subject to following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that causes undesired operation.

This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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 in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**CAUTION**
No changes shall be made to the equipment without the manufacturer’s permission as this may void the user’s authority to operate the equipment.

**Industry Canada (IC) Disclaimer**
This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada’s licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

**IMPORTANT**
The Manufacturer is not liable for improper use of the device.

## Safety devices

**Warnings**
**CAUTION**

- Install the device securely. Be careful handling the device to prevent injury and do not drop.

**CAUTION**

- Equipment is intended for installation in a Restricted Access Area.

**CAUTION**

- Wall or ceiling mounting device requires use of a mounting plate or bracket.
- The plate or bracket must be of metal construction and have a minimum thickness of 1mm.

**CAUTION**

- Use M4x0.5mm Flat Head screws to attach mounting plate or mounting brackets to threaded holes on bottom or rear of chassis.
- Screws should be a minimum length of 4mm. Add 1mm of screw length for every mm of additional thickness of plate or bracket beyond 1.5mm.

**CAUTION**

- Safe operating temperature and non-condensing humidity ratings must be adhered to, please refer to the specifications table for safe operating temperature and humidity ratings..

**CAUTION**

- Safe Storage temperature must be adhered to, please refer to the specifications table for safe storage temperature ratings.

**CAUTION**

- Keep the device away from liquids and flammable materials.

**CAUTION**

- Do not clean the device with liquids. The chassis can be cleaned with a cloth.

**CAUTION**

- Allow at least 2 inches of space around all sides of the device for proper cooling.
- If the device is mounted to a vertical surface then the recommended device orientation is so that the heatsink fins allow air to rise unobstructed.
- Alternative orientations may result in reduced operational temperature range.

**CAUTION**

- This device is intended for indoor operation only.

**CAUTION**

- Use UL Listed external power supply with rated output 12-48Vdc.

**CAUTION**

- Wiring methods used for the connection of the equipment to the mains supply shall be in accordance with the National Electrical Code, NFPA 70, and the Canadian Electrical Code, Part I, CSA C22.1.

**CAUTION**

- Allow ample space for terminal block wiring connections such that the wires do not bend and are protected from accidental damage.

**CAUTION**

- Install the device only with shielded network cables.

**CAUTION**

- Radio device is not intended for emergency service use.

**CAUTION**

- Service and repair of the device must be done by qualified service personnel. This includes, but is not limited to, replacement of the CMOS battery. Replacement CMOS battery must be of the same type as the original.

**CAUTION**

- Proper disposal of CMOS battery must comply with local governance.

**CAUTION**

- Product must only be connected to a certified router, switch or similar network equipment.

**CAUTION**

- Product is intended for indoor use only.

**CAUTION**

- Product cannot be connected to the public network.

**CAUTION**

- Environmental conditions that differ from those specified may seriously damage the device. Positioning the device in environments that do not correspond to those indicated shall render the warranty null and void for the parts to be replaced.
- SECO S.p.A. shall not be held liable if these instructions are not complied with.

**Safety pictograms affixed on the device and used in the manual**

- The device and the manual are equipped with symbols, as indicated in the table below:

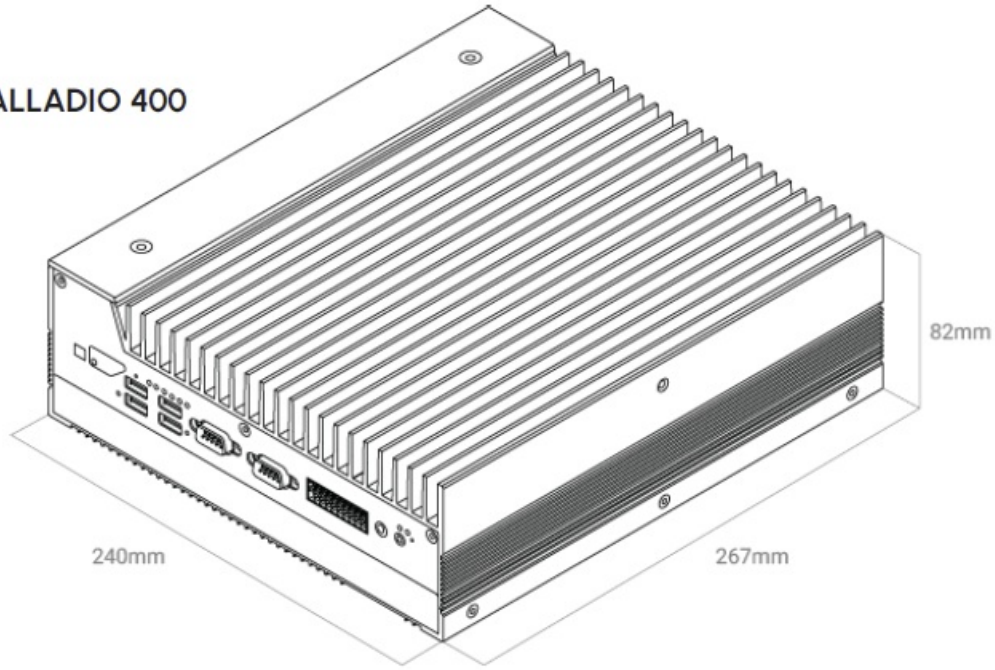
| PICTOGRAM | DESCRIPTION |
| --- | --- |
| CE | **CE marking** |
|  | **RAEE**<br>Indicates the separate collection of electronic and electrical equipment according to Directive 2012/19/EU. |
|  | Symbol used to indicate the need to consult the instruction manual before using the equipment. |

## Characteristics and components of the device

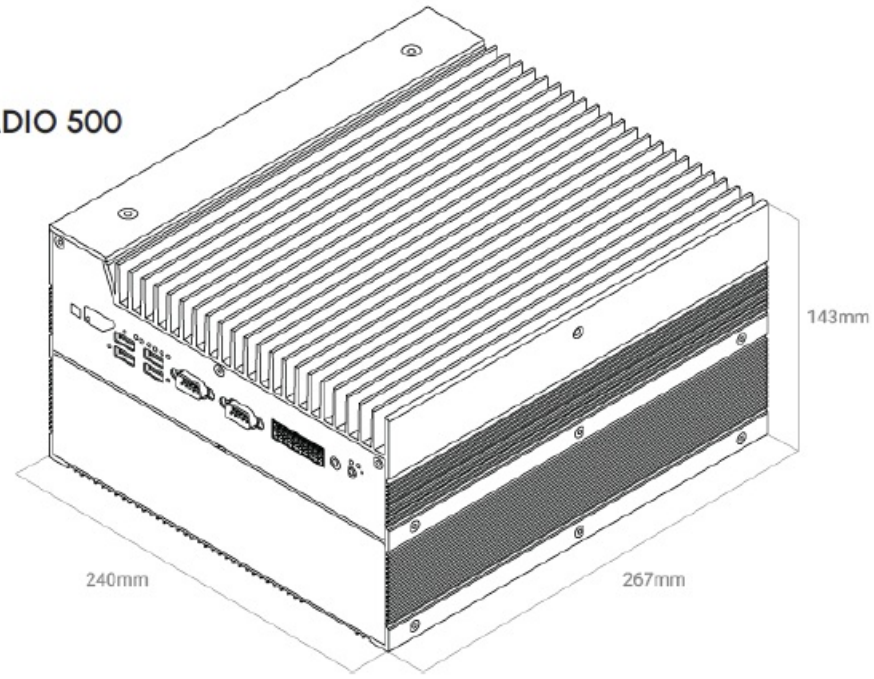
- The PALLADIO device is a new Modular fanless embedded PC with 13th Gen Intel® Core™ processors.
- The PALLADIO it is equipped with a cables connectors kit in order to connect properly to the destination machine.

**Measurement layout**

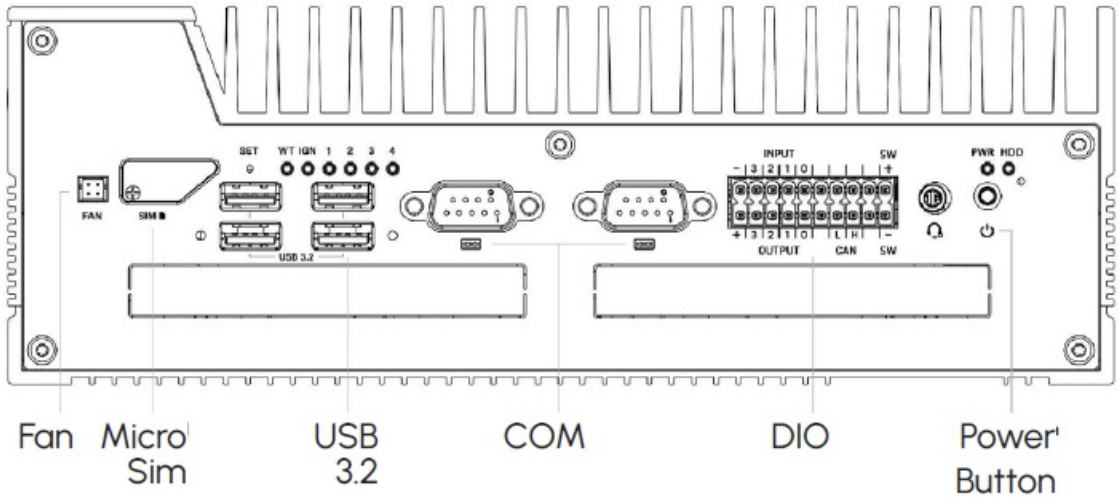
PALLADIO 400

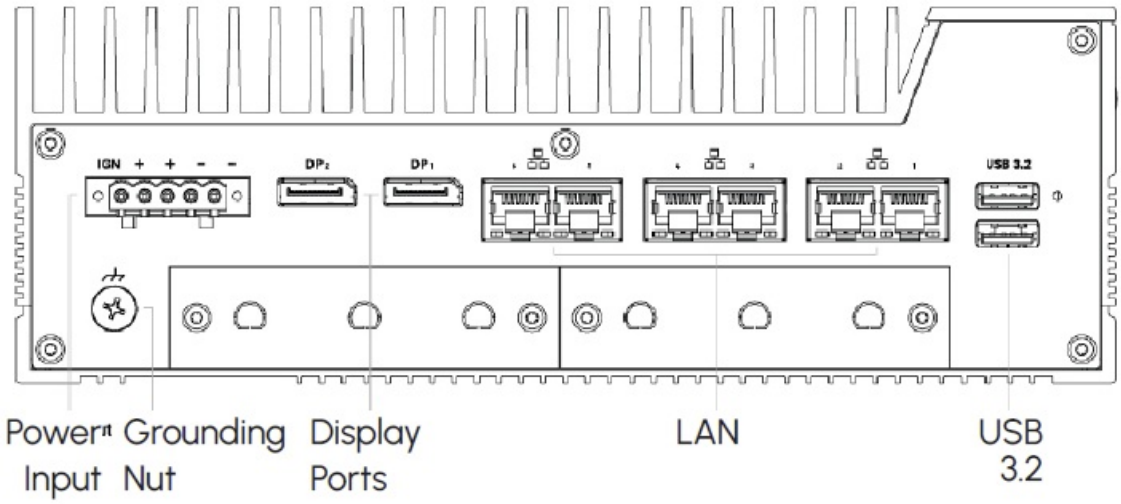



PALLADIO 500




**Components**




## Installation

**Permitted environmental conditions**
Use of the device and of associated control systems that differ from those listed below is not permitted.
In particular, the installation and operation environment must not be:

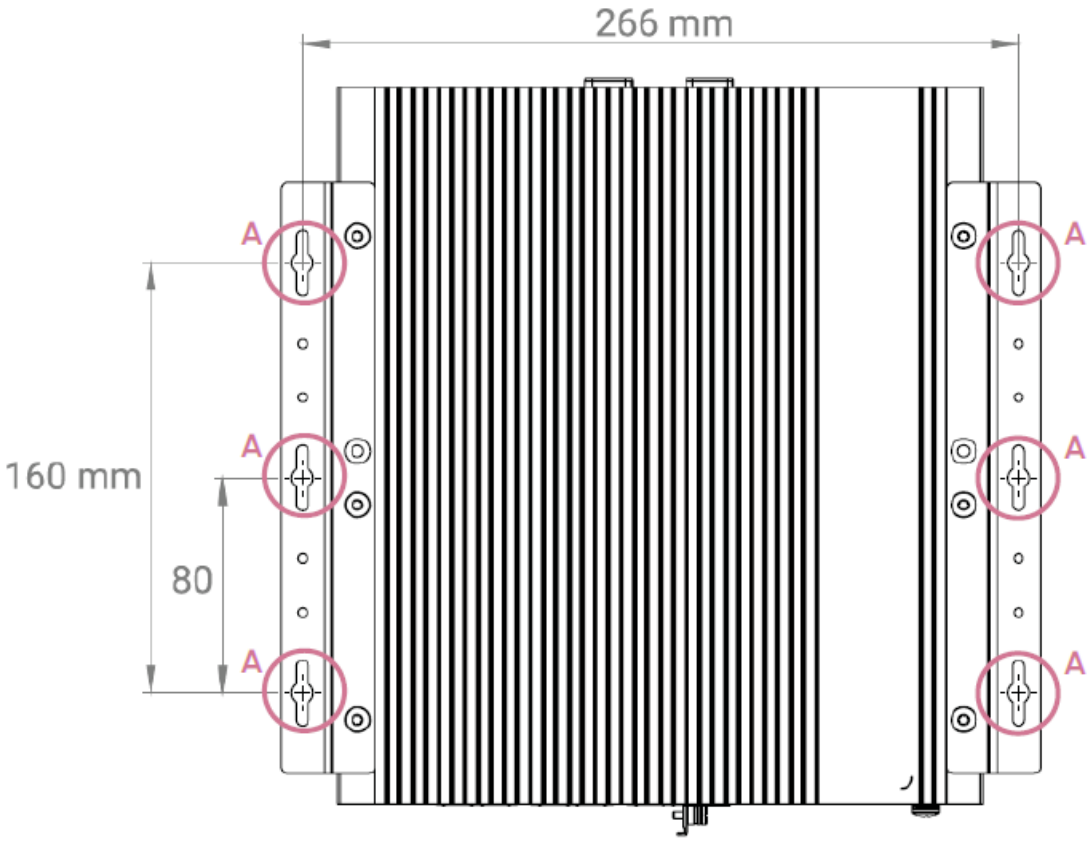
- Exposed to environmental temperatures exceeding -40°C to +50°C/+70°C.
- Exposed to limit areas of 2,000 m.a.s.l.
- Exposed to excessive humidity (minimum 0%, maximum 95 %) and rapid changes in relative humidity (above 0.005 p.u./h).
- Exposed to corrosive fumes.
- Exposed to excessive dust.
- Exposed to abrasive dust.
- Exposed to oil vapours.
- Exposed to powder or gas explosive mixtures.
- Exposed to salt air.
- Exposed to vibrations, impacts or abnormal shocks.
- Exposed to weather conditions beyond the limits permitted or dripping.
- Exposure to unusual transport or storage conditions.

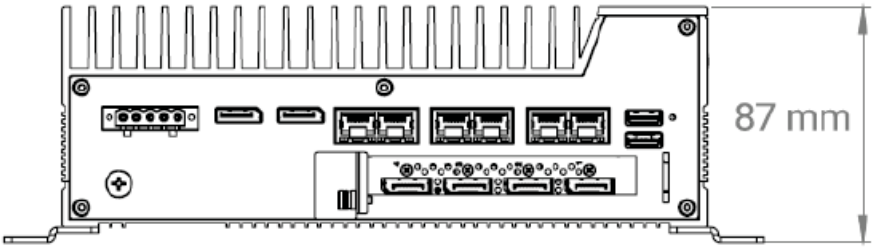
- Exposure to high or rapid thermal changes (above 5K/h).
- Presence of nuclear radiation.
- The conductors of the command and control circuits directly connected to the supply voltage must be protected against overcurrents.
- The conductors of the command and control circuits fed by a transformer or by a DC supply must be protected against overcurrent.
- In command and control circuits connected to a protective equipotential circuit, the requirement is satisfied by inserting a protective device against overcurrents in the isolated conductor.

**CAUTION**
Environmental conditions that differ from those specified may seriously damage the device. Positioning the device in environments that do not correspond to those indicated shall render the warranty null and void for the parts to be replaced.
SECO S.p.A. shall not be held liable if these instructions are not complied with.

To install the device properly on machine/wall/sheet/other support, follow the procedure below:

1. Make sure the electric connection on the destination machine is off and the electric power supply is disconnected from the device;
2. Fix the device to the existing support using six M4x0.5mm flat head screws that will be screwed in matching the holes (A) in the plate;
   **NOTE:** screws should be a minimum length of 4mm. Add 1mm of screw length for every mm of additional thickness of plate or bracket beyond 1.5mm.
3. Proceed to connect the electric supply to the device. Once inserted, turn the connector clockwise in order to lock it in place;
4. Proceed to electrically connect the destination machine.

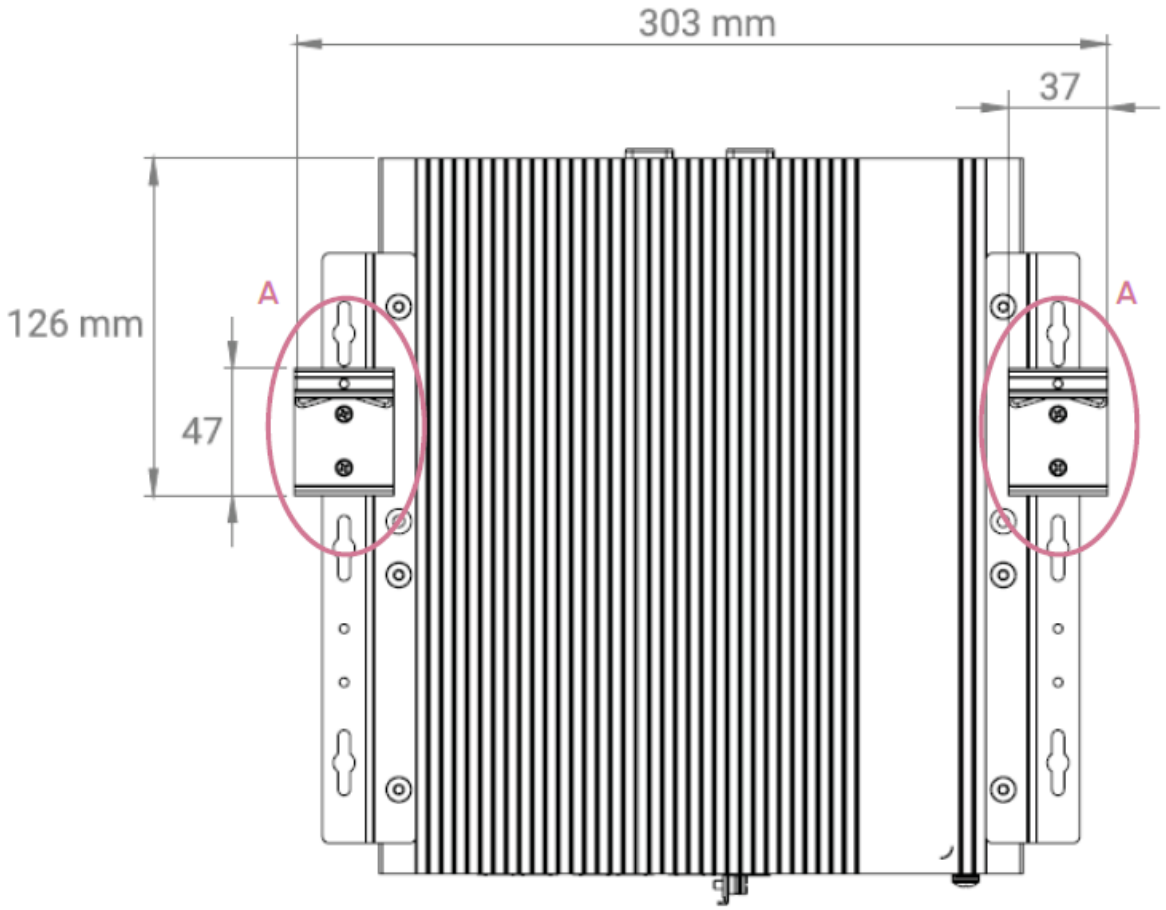


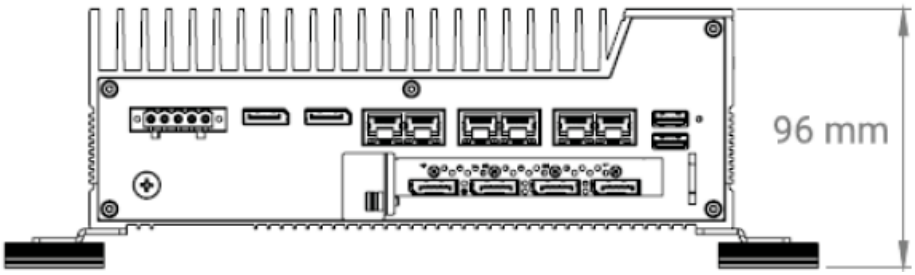




**PALLADIO**

To install the device properly on machine/wall/sheet/other with DIN support, follow the procedure below:

1. Make sure the electric connection on the destination machine is off and the electric power supply is disconnected from the device;
2. Proceed to fasten the device to the standard DIN bar support (A) pushing it until will be locked;
3. Proceed to connect the electric supply to the device. Once inserted, turn the connector clockwise in order to lock it in place;
4. Proceed to electrically connect the destination machine.




### Maintenance

- User should clean the product with a dry cloth when necessary, based on his visual inspection.

**CAUTION**
Disconnect the device from any power source before cleaning operation.
**WARNING**
The enclosure of the device must be cleaned only with a dry cloth.
After cleaning, the user should check that the product is still correctly installed.

### Waste disposal

- Electrical equipment no longer in use must not be thrown away with normal municipal waste. The substances and materials it contains must be disposed of separately in an appropriate manner.
- The device must be disposed correctly as it is a waste of electric and electronic equipment (WEEE).

## Accessories

**IMPORTANT**
The accessories listed below are sold separately and are not included in the product certification of the devices.

**4G LTE Connectivity**

- EU
- USA

4G LTE Antennas
Wi-Fi / Bluetooth Connectivity
Wi-Fi / Bluetooth Antennas
Modulo AXELERA P/N 302700U000000 ()
External Cooling Fan (recommended for any of the 65W CPU, PoE, or GPU options)
Power Adapter DC 330W, 24V, 13.75A with 5-pin Terminal Block Adapter:

- S Power Cord
- EU Power Cord
- UK Power Cord

**Mounting**

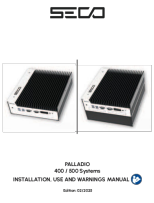
- Wall Mount Brackets
- DIN Rail Mount Brackets

Information subject to change. Please visit [www.seco.com](www.seco.com) to find the latest version of this manual.

## FAQ

- **Q: What should I do if I encounter a technical issue with my PALLADIO system?**
  - **A:** If you experience any technical difficulties, refer to the troubleshooting section in the user manual or contact our customer support for assistance.

## Documents / Resources

| | |
|---|---|
|  | SECO PALLADIO 400 Modular Fanless Embedded PC [pdf] Instruction Manual SECO-K843-PALLADIO400RPL, SECO-K845-PALLADIO400RPL, SECO-K847-PALLADIO400 RPL, SECO-K855-PALLADIO500RPL, SECO-K857-PALLADIO500RPL, SECO-K859-PALLADI O500RPL, PALLADIO 400 Modular Fanless Embedded PC, PALLADIO 400, Modular Fanless E mbedded PC, Fanless Embedded PC, Embedded PC |

## References

- **User Manual**