

**SYS-C43-IPC  
INSTALLATION, USE AND WARNINGS MANUAL**

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# 1 Preliminary information

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## 1.1 Device description

The **SYS-C43-IPC** device is a gateway enclosed in a metal box with a heat sink.

The **SYS-C43-IPC** is a boxed solution based on the i.MX 8 QuadMax i.MX 8 QuadPlus Applications Processors, placed inside a finned box enclosure.

The technology developed by **SECO S.p.A.** for the **SYS-C43-IPC** device can be used and applied in various fields, such as:



Biomedical/  
Medical devices



Digital Signage -  
Infotainment



Edge Computing



Industrial  
Automation and



Internet of  
Things



Smart Vision



Vending

## 1.2 Recipients

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



**Important!** The user must read this manual before start with any kind of operation.

## 1.3 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.

## 2 Identification

### 2.1 Manufacturer identification

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

### 2.2 Device identification

|                       |                    |
|-----------------------|--------------------|
| Device                | <b>SYS-C43-IPC</b> |
| Serial number         | YYMMXXXXX          |
| Year of manufacturing | <b>2022</b>        |

### 2.3 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.



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

### 3 Technical specifications

#### 3.1 SYS-C43-IPC device hardware specifications

The table below features the board hardware specifications:

|                             |   |
|-----------------------------|---|
| <b>Processor</b>            | <p>NXP i.MX 8 Family:<br/> i.MX 8QuadMax: 2x ARM Cortex® -A72 + 4x ARM® Cortex® -A53 + 2x Cortex® -M4F<br/> i.MX 8QuadPlus: 1x ARM Cortex® -A72 + 4x ARM® Cortex® -A53 + 2x Cortex® -M4F</p>  |
| <b>Memory</b>               | <p>Soldered down LPDDR4 memory, 64-bit interface, 1600MHz.<br/> Base configuration 2GB, up-scalable to 4GB, 6GB, 8GB</p>  |
| <b>Mass Storage</b>         | <p>eMMC 5.1 Drive soldered on-board, up to 64GB<br/> 1x S-ATA interface available on M.2 Socket 2 Key B Slot (interface shared with PCI-e x1)<br/> microSD Card Slot<br/> 4MB QuadSPI Flash NAND (boot device only)</p>   |
| <b>Network connection</b>   | <p>2x Gigabit Ethernet interfaces<br/> M.2 Socket 2 Key B Slot for M.2 Modems<br/> M.2 Socket1 Key E Slot for WiFi + BT external modules</p>  |
| <b>USB</b>                  | <p>1 x USB 3.0 Host port on Type-A socket<br/> 1x USB 2.0 OTG port on micro-AB socket<br/> 1x USB 2.0 Host port on external Type-A socket<br/> 1x USB 2.0 Host port on internal connector<br/> 2x USB 2.0 ports available on M.2 Key B and Key E slots</p>  |
| <b>Video</b>                | <p>HDMI: Up to UltraHD (4K) - Complying with HDMI 1.4b certification<br/> LVDS, eDP: up to 1080p</p>  |
| <b>Operating System</b>     | <p>Wind River Linux<br/> Yocto<br/> Android</p>   |
| <b>Type of installation</b> | <ul style="list-style-type: none"> <li>• Fastening for integration use on industrial machine using threaded pins directly on the mechanical plate;</li> <li>• Table top free installation;</li> <li>• Fastening for table top or wall mounting using: <ul style="list-style-type: none"> <li>- <b>VESA 75</b> standard 75 x 75mm wheelbase support</li> <li>- <b>VESA 100</b> standard 100 x 100mm wheelbase support</li> </ul> </li> </ul> |

|  |  |
|--|--|
|  | +12VDC ± 10%   |
| <b>Power Supply</b>                              | Accessory recommended by the manufacturer: <ul style="list-style-type: none"> <li>• 2.1 mm DC jack to Mini-Fit Power Cabling Power adapter cable in case that the board is sold with the accessory PSU</li> <li>• AC/DC Power Supply Unit                 <ul style="list-style-type: none"> <li>- Switching Power Supply</li> <li>- 12Vout</li> <li>- 60W Pout in the range -10°C..40°C / 30W Pout @ 60°C</li> <li>- Insulation's class: Class I with ground connection</li> <li>- P/N: ADT-060A12AA(AB)</li> </ul> </li> </ul> |
|  |  |
| <b>Battery model</b>                             | Lithium battery CR1225   |
| <b>Operating temperature in user environment</b> | 0°C ÷ +50°C**  |
| <b>Exposed to limit areas of 2000 m.a.s.l.</b>   |  |
| <b>Humidity</b>                                  | 10~95% @40°C non-condensing  |



**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.

### 3.2 Software Specifications

C43XXXYY.BBB software version, where:

- XXX is 000 in standard version and assumes other values in customized versions
- YY is the revision
- BBB is the BIOS version

Software version **C43** is released on the SECO website <https://www.seco.com> and is always updated and available, even in later versions.



### 3.3 Reference directives

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

- **CE marking as IT device**
- **FCC - Part 15 Certification**
- **Declaration of Conformity\***
- **User manual\***

*\*These documents are available after a request to the manufacturer.*

Please also note that the device has been designed according to the following Directives:

- **2014/30/EU Electromagnetic Compatibility Directive**
- **2009/125/CE Ecodesign**
- **2012/19/EU (WEEE)**
- **2011/65/EU (RoHS)**

The device also meets the requirements of the following standards:

- **IEC 62368-1:2014**
- **IEC 60950-1**

### 3.4 FCC disclaimer

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

NOTE: This equipment has been tested and found to comply with the limits for a Class B 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.

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

## 4 Safety devices

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### 4.1 Warnings



**Caution!** It is the user's responsibility to apply preventive and protective measures, in accordance with the legislation of the country of installation and use of the device.



#### **Lithium Battery Warning**

**Caution! Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.**



**Caution!** Only use the accessories supplied by the manufacturer.



**Caution!** Only connect certified peripherals / devices to the device.



**Important!** Operations on the device must be carried out by specialized and authorized personnel only.



**Caution!** Always disconnect the electrical power supply before carrying out any work on the device.



**Caution!** Check that the electrical voltage meets the values indicated in this manual before connecting the device.



**Caution!** Disconnect the device from any power source before cleaning.



**Warning!** The enclosure of the device must be cleaned only with a dry cloth.



**Caution!** Do not pour liquids of any kind on the device. This may cause fires and/or electric shocks.



**Caution!** Keep the device away from exposure to moisture values outside the admissible range indicated in this manual.



**Caution!** The device must always be fixed to a machine or with **VESA 75** or **VESA 100** standard fixing support or using the DIN bar (using the special accessory equipped with a spring) before proceeding with any type of operation and/or use.



**Caution!** This equipment must only be connected to a supply main with protective earth.



**Caution!** It is strictly forbidden to modify the appliance in order not to compromise the characteristics relating to the declared requirements.



**Caution!** Make sure that any part of the device cannot come in contact with an unconscious, anaesthetized or incapacitated patient.



**Warning!** It is strictly forbidden to cover the device during operation.








**Warning!** Personnel training is a responsibility of the manufacturer of the device to which the **SYS-C43-IPC** will be connected.



**Warning!** Make sure that the fixing nut on the earth connection it's correctly fixed to the pin on the back of the device.

## 4.2 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  |
|---|--|
|  | <p><b>CE marking</b></p>   |
|  | <p><b>Danger of hot surfaces!</b><br/>Skin burns in case of contact.<br/>Do not touch with your hands or other body parts.</p>       |
|  | <p><b>Caution!</b><br/>Risks deriving from not reading the instructions.</p>   |
|  | <p><b>RAEE</b><br/>Indicates the separate collection of electronic and electrical equipment according to Directive 2012/19 / EU.</p> |
|  | <p>Symbol used to indicate the need to consult the instruction manual before using the equipment.</p>                                |

## 5 Characteristics and components of the device

The **SYS-C43-IPC** device is a gateway enclosed in a metal box with a heat sink.



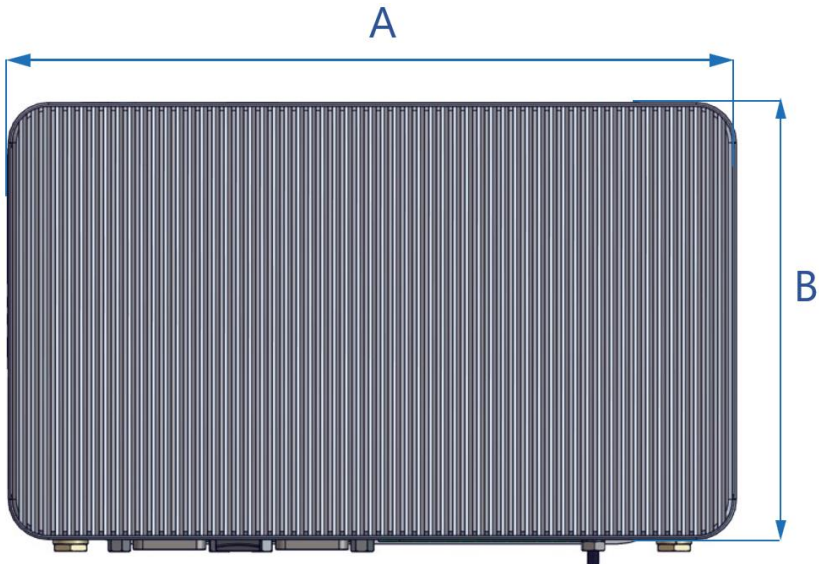
**Caution!** When running, the device can reach very high temperatures, causing the danger of burns when in contact with the heat sink.

A back cover with 4 universal fastening points is fastened to the connection frame.

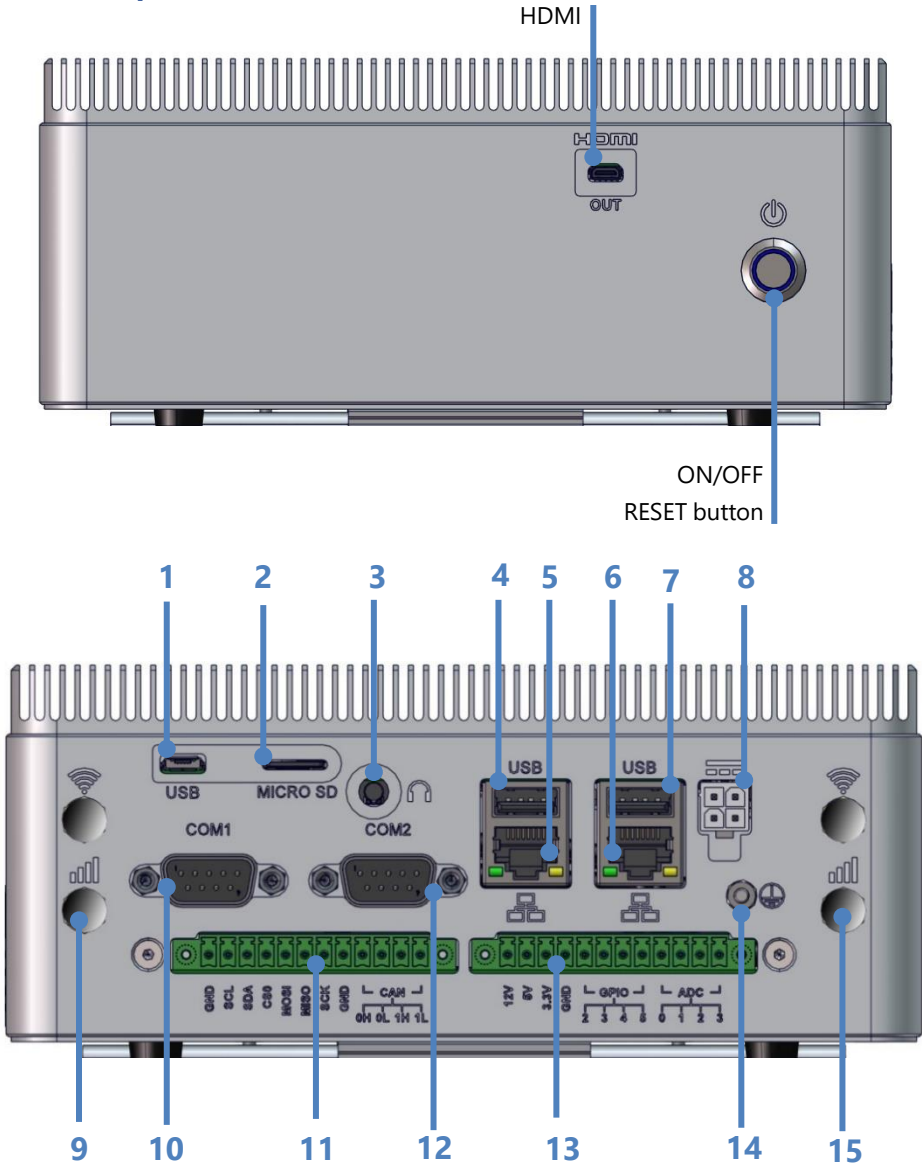
The inserts are the only fastening system to integrate the device on any of the customer's machines.

### 5.1 Measurement layout

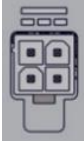
|   |        |
|---|--------|
| <b>Length (A)</b>                                   | 181 mm |
| <b>Width (B)</b>                                    | 106 mm |
| <b>Height</b>                                       | 73 mm  |
| <b>Centre-to-centre distance of fastening holes</b> | 85 mm  |



## 5.2 Components



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

| POS   | DESCRIPTION  |
|-------|--|
| 1     | USB 3.0 Type-A   |
| 2     | Micro SD   |
| 3     | Line Out + Mic In combo TRRS audio jack  |
| 4/7   | USB 2.0 Dual Type-A connector  |
| 5/6   | Ports Ethernet   |
| 8     | Power supply input: <ul style="list-style-type: none"> <li>• Pin1= GND</li> <li>• Pin2= GND</li> <li>• Pin3= Vin (12Vdc)</li> <li>• Pin4= Vin (12Vdc)</li> </ul>  |
| 9     | Antenna connection for radio module connection   |
| 10/12 | DB9-M type connector used for the RS-232 bus   |
| 11/13 | 12-pole communication bus/signal connector: <ul style="list-style-type: none"> <li>• 1x CAN</li> <li>• 8x GPIOs</li> <li>• 1x SPI</li> <li>• 1x I2C</li> <li>• 1x 5V</li> <li>• 1x 3.3V</li> <li>• 1x 12V</li> <li>• 3x GND</li> </ul>             |
| 14    | Screw connection for functional earth connection   |
| 15    | Antenna connection for radio module connection   |

## 6 Permitted environmental conditions

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### 6.1 Transport and storage environmental conditions

The table below features permissible environmental conditions for transport and storage.

|                                |                                  |
|--------------------------------|----------------------------------|
| <b>Room temperature range</b>  | 0 °C ÷ + 50 °C                   |
| <b>Relative humidity range</b> | 10 % ÷ 95 % @40°C non-condensing |

### 6.2 Operating 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 0 °C to + 50 °C;
- Exposed to limit areas of 2000 m.a.s.l.;
- Exposed to excessive humidity (10~95% @40°C non-condensing) 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.





**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.

## 7 Installation

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### 7.1 Installing the device

The power button is backlit by a LED when the device is on.

The device does not generate system messages, error messages or fault messages.



**Warning!** Only use certified power supplies, capable of delivering a power limited to 100 Watts (maximum limit) in normal operating conditions and also in fault conditions.



**Warning!** Only use power supply provided as a accessories AC/DC Power Supply Unit or a similar that must be comply with the following characteristics:

- Switching Power Supply
- 12Vout
- 60W Pout in the range -30°C / 50°C
- Insulation's class: Class I with ground connection
- P/N: ADT-060A12AA (AB)

If other power supply will be used, referring directive of usage's destination.




**Warning!** For the functional earth connection, use only the fixing system supplied by the manufacturer.



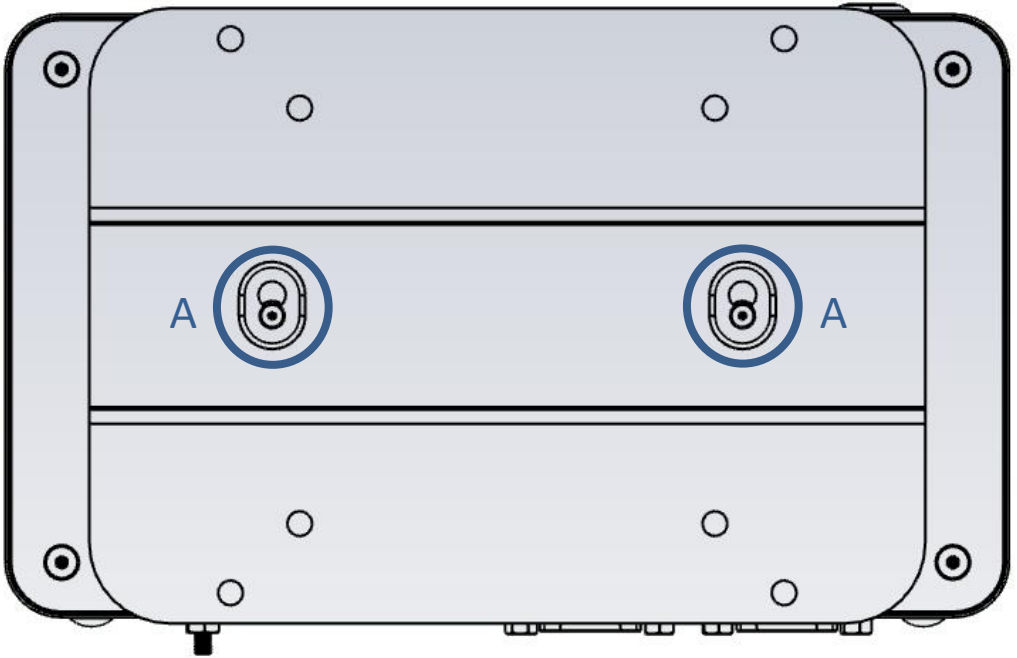
**Warning!** Be sure to fix the device by fastening the screws.

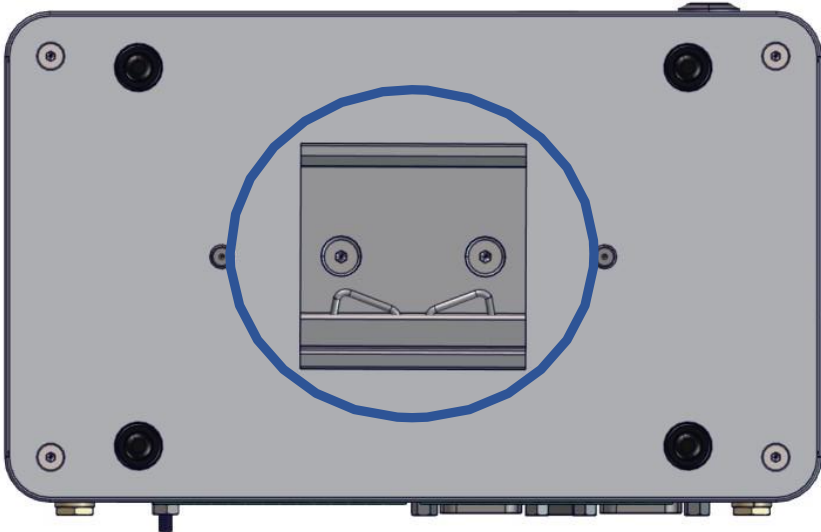
In order to install the device, make sure that the incoming electrical power supply complies with the following values:

|                               |  |
|-------------------------------|--|
| <p>Power supply</p>           | <p>Only use power supply <b>LPS</b> that are certified according to safety standards, pursuant to the regulations in force in the country of use (IEC 60950-1).<br/>           Only use certified power supplies, capable of delivering a power limited to 100 Watts (maximum limit) in normal operating conditions and also in fault conditions.<br/>           + 12 V DC<br/>           5A</p>  |
| <p>Minimum power required</p> | <p>60 W</p>  |

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

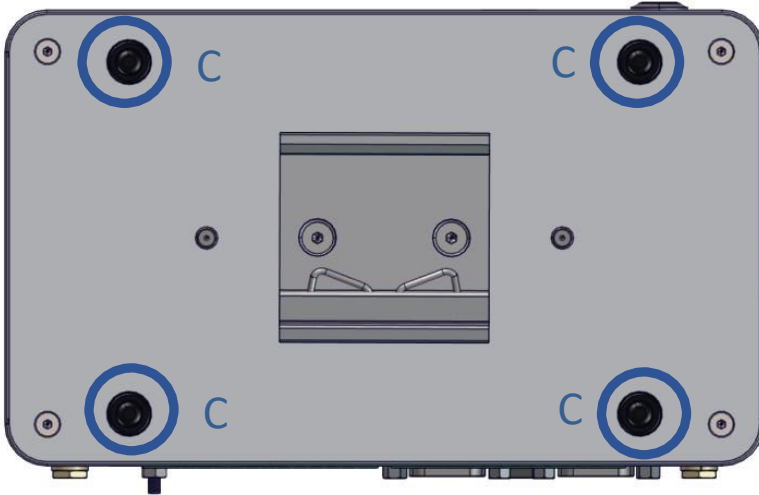
- 1 Make sure the electric connection on the destination machine is off and the electric power supply is disconnected from the device;
- 2 Prepare the machine/wall/sheet/other making 4 holes spaced according to the VESA standard hole spacing;
- 3 Fix the VESA bracket to machine/wall/sheet/other, using 4 screws that will be screwed in matching the VESA holes in the plate with the 4 holes made in step 2 (the VESA bracket must be mounted as shown in the image below);
- 4 Take the device and match the 2 PEMs **A** present on the bottom of the device to the 2 slots of the VESA bracket previously fixed as explained in point 3, insert them one inside the other;
- 5 Slide the device downwards so that the PEMs **A** will be in corresponding position with the narrowest part of the slots and will thus be, fixing itself stably.
- 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.





To install the device properly on **wall using DIN bar support**, follow the procedure below:

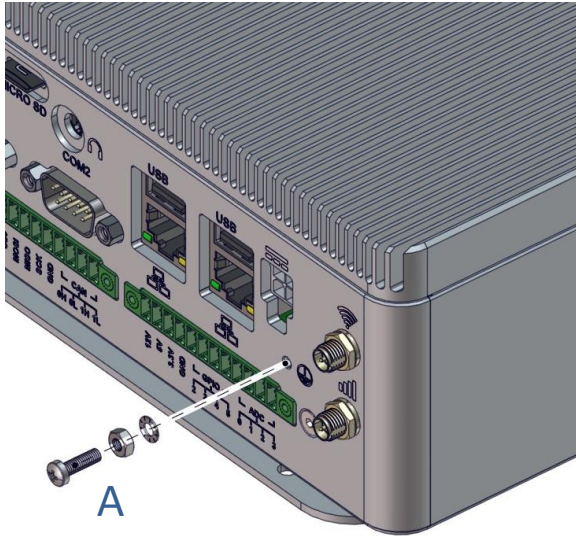
- 1 Make sure the electric connection on the destination machine is off and the electric power supply is disconnected from the device;
- 2 Proceed to fasten the device to the standard **DIN bar** support pushing it until will be locked;
- 3 Proceed to connect the electric supply to the device. Once inserted,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



To install the device properly on **table/plane surface**, 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 positioning the device taking care to leave enough space around and that the support fit feet (**C**) have enough grip on the surface;
- 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.

After the installation's procedure, be sure to connect the grounding removing the screw A, as shown in the figure below:



**SECO S.p.A.** shall not be held liable if these instructions are not complied with.

## 7.2 Versions available

The **SYS-C43-IPC** device is available in different versions that integrate various configurations of the single electronic board "C43".

Below are the tables with the main configurations of the device:

|                          |   |
|--------------------------|---|
| SYS-C43-IPC-0000-0000-Cx | PRIMARIA  |
| SYS-C43-IPC-1xxx-xxxx-Cx | i.MX 8QuadPlus 1.6GHz Automotive -40 to 125 °C            |
| SYS-C43-IPC-2xxx-xxxx-Cx | i.MX 8QuadPlus (no DSP) 1.6GHz Automotive -40 to 125 °C   |
| SYS-C43-IPC-3xxx-xxxx-Cx | i.MX 8QuadMax 1.6GHz Automotive -40 to 125 °C Tj          |
| SYS-C43-IPC-4xxx-xxxx-Cx | i.MX 8QuadMax (no DSP) 1.6GHz Automotive -40 to 125 °C Tj |
| SYS-C43-IPC-x1xx-xxxx-Cx | 2 GB - 2 x 1GB LPDDR4 -30 °C to +85°C                     |
| SYS-C43-IPC-x2xx-xxxx-Cx | 4 GB - 2 x 2GB LPDDR4 -30 °C to +85°C                     |
| SYS-C43-IPC-x3xx-xxxx-Cx | 8 GB - 2 x 4GB LPDDR4 -30 °C to +85°C                     |
| SYS-C43-IPC-xx1x-xxxx-Cx | eMMC 4 GB Range Comm.                                     |
| SYS-C43-IPC-xx2x-xxxx-Cx | eMMC 8 GB Range Comm.                                     |
| SYS-C43-IPC-xx3x-xxxx-Cx | eMMC 16 GB Range Comm.                                    |
| SYS-C43-IPC-xx4x-xxxx-Cx | eMMC 32 GB Range Comm.                                    |
| SYS-C43-IPC-xx5x-xxxx-Cx | eMMC 64 GB Range Comm.                                    |
| SYS-C43-IPC-xxx0-xxxx-Cx | No Modulo M2 KEY B  |
| SYS-C43-IPC-xxx1-xxxx-Cx | Modulo storage M2 formato 32GB                            |
| SYS-C43-IPC-xxx2-xxxx-Cx | Modulo storage M2 formato 64GB                            |
| SYS-C43-IPC-xxx3-xxxx-Cx | Modulo storage M2 formato 128GB                           |
| SYS-C43-IPC-xxx4-xxxx-Cx | Modulo storage M2 formato 256GB                           |
| SYS-C43-IPC-xxx5-xxxx-Cx | Modulo storage M2 formato 512GB                           |
| SYS-C43-IPC-xxxx-1xxx-Cx | Senza modulo Wi-fi/BT                                     |
| SYS-C43-IPC-xxxx-x0xx-Cx | Nessun sistema operativo installato                       |
| SYS-C43-IPC-xxxx-x1xx-Cx | Android   |
| SYS-C43-IPC-xxxx-x2xx-Cx | Yocto   |



## 8 Maintenance

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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.



**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.

## 9 Waste disposal

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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).