



SYS-B68-IPC
INSTALLATION, USE AND WARNINGS MANUAL

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1 Preliminary information

1.1 Device description

The **SYS-B68-IPC** device is a single board computer enclosed in a metal box with a heat sink.

The **SYS-B68-IPC** device integrates a single standard NUC board based on the eighth generation Intel® Atom, Pentium® and Celeron® family of System-on-Chips (SOC) previously coded as Apollo Lake, a series of SOC Dual / Quad with a set of 64 bit instructions.

The technology developed by **SECO S.p.A.** for the **SYS-B68-IPC** device can be used and applied in various fields, such as:



**Digital Signage
Infotainment**



**Edge
Computing**



Robotics

1.2 Recipients

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

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 unauthorised personnel or failure to respect duties, as indicated in the manual;
- changes or repairs carried out by the user without written authorisation 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

MANUFACTURER	SECO S.P.A.
Address	Via Achille Grandi n°20 52100 Arezzo – Italy Tel: +39 0575 26979 Fax: +39 0575 350210

2.2 Device identification

Device	SYS-B68-IPC
Serial number	YYMMXXXXX
Year of manufacturing	2020

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, as shown in the table:



SYS-B68- IPC -XXXX-1XXX-I3	IPC - Code that identifies the Client.
SYS-B68-IPC- XXXX-1XXX -I3	XXXX-1XXX - Code that identifies the electronic board inside the device (reference page 14).
SYS-B68-IPC- XXXX-1XXX- I3	I3 – Code that identifies the temperature range and revision index of the device.



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

3 Technical specifications

3.1 SYS-B68-IPC device hardware specifications

The table below features the board hardware specifications:

Processor	Intel® Atom™ x7-E3950 Quad Core @1.6 GHz (Burst 2.0GHz), 2MB L2 Cache, 12W TDP Intel® Atom™ x5-E3940 Quad Core @1.6 GHz (Burst 1.8GHz), 2MB L2 Cache, 9.5W TDP Intel® Atom™ x5-E3930 Dual Core @1.3 GHz (Burst 1.8GHz), 2MB L2 Cache, 6.5W TDP
Memory	Quad Channel soldered down LPDDR4 memory, up to 8GB
Graphics	Integrated Intel® HD Graphics 505 or 500 series controller, with up to 18 Execution Units 4K HW decoding and encoding of HEVC(H.265), H.264, VP8, SVC, MVC Dual independent display
Screen Section	Two multimode Display Port on miniDP++ connectors
Mass Storage	Optional eMMC drive onboard Optional SATA M.2 SSD module up to 512GB
Network connection	2 x Gigabit Ethernet ports M.2 Socket 2 Key B Slot for Modem modules (alternative to M.2 SSD), connected to internal microSIM Slot M.2 Socket 1 Key E Slot for WiFi/BT modules
USB	2 x USB 3.0 Type-A sockets on Front Panel 2 x USB 2.0 Type-A sockets on Rear Panel
Audio	Internal HD Audio codec Cirrus Logic CS4207 Mic In and Line Out Audio jacks
Serial ports	2x RS-232/RS-422/RS-485 ports, software configurable, DB9 male connectors
Other interfaces	Power Button Power On Status LED
Electrical Power Supply	PCB terminal block, type Phoenix 1990973 +18VDC ÷ +32 VDC recommended

Operating System	Preinstalled OS (factory options): Microsoft Windows 10 IoT entry Linux Ubuntu 64-bit Available on request: Wind River Linux (64-bit) Yocto (64-bit) Android (planning)
Optional Accessories	miniDP++ to HDMI adapter Customised bracket for VESA panel mount
Operating temperature in user environment	-40°C ÷ +85°C**
Humidity	5% ÷ 85%
Type of installation	Fastening with screws

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

BIOS **B6I FLASH** software version released on the website <https://www.seco.com/it/sys-b68-ipc.html>, which 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
- Declaration of Conformity
- FCC - Part 15 Certification*
- ISED Certification**

* (1) 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 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.

** This device complies with Industry Canada licence-exempt RSS standard(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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence.

L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et*
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

Ce dispositif a été conçu pour fonctionner avec les antennes fournies avec ce produit. L'utilisation d'autres antennes peut enfreindre les règles industrielles du Canada et annuler l'autorité de l'utilisateur quant au fonctionnement de l'équipement.

This device complies with RSS-210, ICES-3(B)/NMB-3(B)

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

- 2014/30/EU Electromagnetic Compatibility Directive
- 2014/53/EU (RED) (Where applicable, depending on the versions)
- 2012/19/EU (WEEE)
- 2011/65/EU (RoHS)

4 Safety devices

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.



Caution! Only use CLASS 2 power supply with double isolation output and LPS operation (see EN 60950-1 clause 2.5) or ES1 PS2 output (see EN 62368-1) as per reference Standards:

- EN 62368-1
- EN 60950-1



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



Important! Operations on the device must be carried out by specialized and authorised 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.



Caution! Do not use liquid detergents or sprays for cleaning the device.



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 before proceeding with any type of operation and/or use.



Caution! Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

4.2 Safety pictograms affixed to the device

The device is provided with adhesive labels and safety plates, as indicated in the table below.

PICTOGRAM	DESCRIPTION
	<p>Danger of hot surfaces!</p> <p>Skin burns in case of contact Do not touch with your hands or other body parts</p>
PICTOGRAM	DESCRIPTION
	<p>Fire hazard</p> <p>Risk of device fire</p> <p>Do not use a power supply capable of supplying current values greater than 5 Amps</p>

5 Characteristics and components of the device

The **SYS-B68-IPC** device is a single board computer enclosed in a metal box with a heat sink.



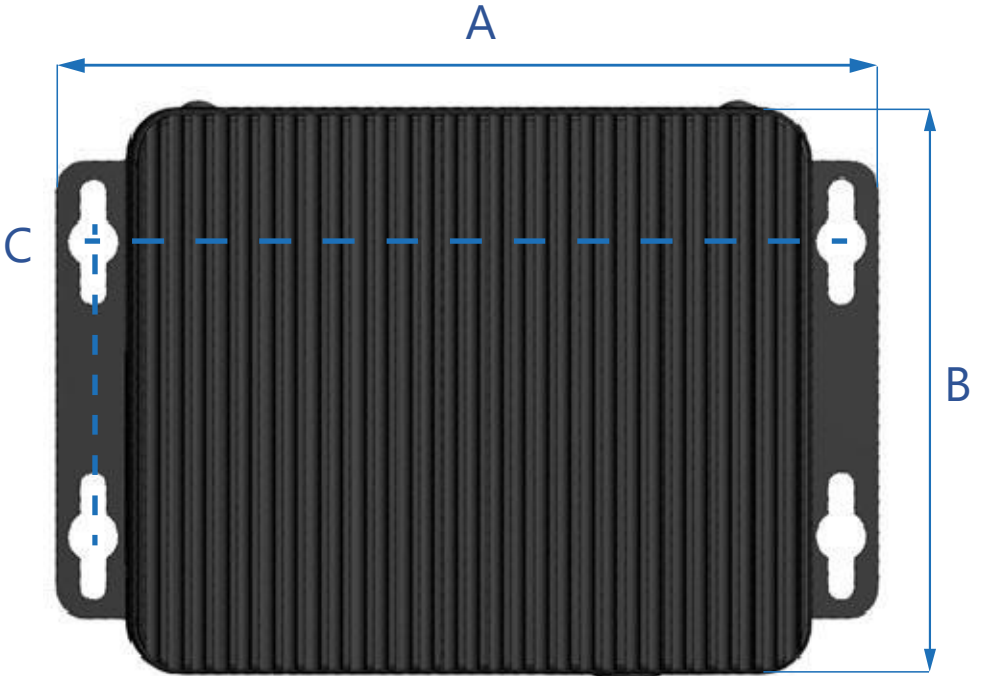
Caution! When running, the device can reach very high temperatures, causing the danger of burns when in contact with the heat sink.

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

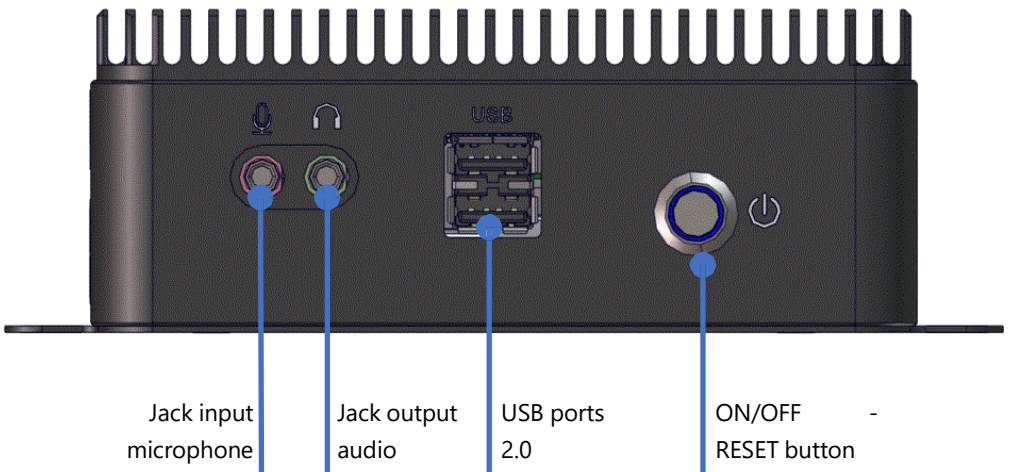
The inserts are the only fastening system to integrate the device on any of the customer's machines.

5.1 Measurement layout

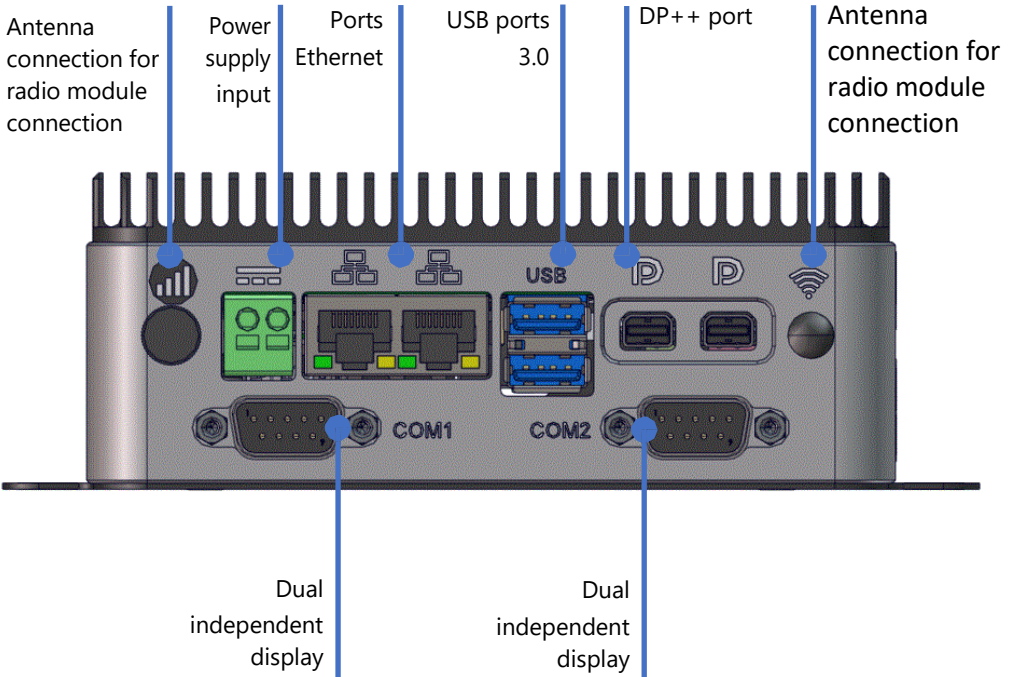
Length (A)	162.3 mm
Width (B)	111.8 mm
Height	52.2 mm
Centre-to-centre distance of fastening holes (C)	147 mm (side A) / 58 mm (side B)



5.2 Components



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



6 Installation

6.1 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 $-40^{\circ}\text{C} \div +85^{\circ}\text{C}$;
- Exposed to limit areas of 2,000 m.a.s.l.;
- Exposed to excessive humidity (minimum 5%, maximum 85 %) 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.

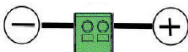


Caution! Environmental conditions that differ from those specified may seriously damage the device. Positioning the device in environments that do not correspond to those indicated shall render the warranty null and void for the parts to be replaced.

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

6.2 Installing the device

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

Power supply	<p>Only use power supply that are certified according to safety standards, pursuant to the regulations in force in the country of use (EN 62368).</p> <p>+ 18 V DC MAX 5 A</p> 
Minimum power required	40 W

To install the device properly on the destination **machine**, 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 destination machine, using the relative screws in points **(A)**, indicated in the figure;
- 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.

For **wallmount** installation, 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;
- Note: for wallmount configuration turn the device to keep the sink fins upright. Proceed to fasten the device to the wall, using:
- expantion screws**
- o material: Nylon
 - o type: SX5-SP 6X40mm
 - o hole diameter: 6mm
 - o hole depth: 40mm
- 2
 - screws**
 - o type: 4.5 x 60mm cylindrical head
 - plain washer**

- internal diameter 4.3mm
 - external diameter 16mm
 - width 1.6mm
 - compliant with ISO 7089
- in points **(A)**, indicated in the figure;

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 **metal sheet/part/wall**, 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;

Proceed to fasten the device to the wall, using:

screws

2 ○ type: M4

flat washer

○ internal diameter 8.4mm
in points **(A)**, indicated in the figure;

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.



6.3 Versions available

The **SYS-B68-IPC** device is available in different versions that integrate various configurations of the single electronic board "B68" e-NUC.

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

CPU Version		
BOM	Version	Description
SB68-1xxx-xxxx-C0	A0	Option CPU Apollo Lake -Intel Celeron N3350
SB68-2xxx-xxxx-C0	A0	Option CPU Apollo Lake Intel Pentium N4200
SB68-6xxx-xxxx-C0	C0	Option CPU Apollo Lake -Intel Celeron J3455
SB68-7xxx-xxxx-C0	C0	Option CPU Apollo Lake -Intel Celeron J3355

RAM Version

BOM	Version	Description
SB68-x1xx-xxxx-C0	B0	Option RAM 1GB (1 8Gb Chip) Single CH0 (A0)(C0)
SB68-x2xx-xxxx-C0	A0	Option RAM 1.5GB (1 12Gb Chip) Single CH0(A1)(C0)
SB68-x3xx-xxxx-C0	B0	Option RAM 2GB (1 16Gb Chip) Single CH0 (A2)(C0)
SB68-x4xx-xxxx-C0	A0	Option RAM 2GB (2 8Gb Chips) Double CH0 + CH1 (A0)(C1)
SB68-x5xx-xxxx-C0	A0	Option RAM 3GB (2 12Gb Chips) Double CH0 + CH1 (A1)(C1)
SB68-x6xx-xxxx-C0	A0	Option RAM 4GB (2 16Gb Chips) Double CH0 + CH1 (A2)(C1)
SB68-x7xx-xxxx-C0	A0	Option RAM 4GB (4 8Gb Chips) Quad CH0 + CH1 + CH2 (A0)(C2)
SB68-x8xx-xxxx-C0	A0	Option RAM 6GB (4 12Gb Chips) Quad CH0 + CH1 + CH2 (A1)(C2)
SB68-x9xx-xxxx-C0	A0	Option RAM 8GB (4 16Gb Chips) Quad CH0 + CH1 + CH2 (A2)(C2)

eMMC Version

BOM	Version	Description
SB68-xx2x-xxxx-C0	C0	Option eMMC 8GB - (CFG B0)
SB68-xx3x-xxxx-C0	B0	Option eMMC 16GB - (CFG B0)
SB68-xx4x-xxxx-C0	B0	Option eMMC 32GB - (CFG B0)