

SYS-C31-DMV INSTALLATION, USE AND WARNINGS MANUAL

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

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1 Preliminary information

1.1 Device description

SYS-C31-DMV is a boxed PC based on **SECO SC31-1121-B495-E2** single board computer with a box designed for this specific application. Current system level part number is SYS-C31-DMV-01-I0.

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

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-C31-DMV
Serial number	YYMMXXXXX
Year of manufacturing	2022

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.



Caution! All operations that can make the labels applied on the device not visible / accessible are strictly forbidden.

3 Technical specifications

3.1 SYS-C31-DMV device hardware specifications

The table below features the board hardware specifications:

Processor	CPU Rockchip RK3399K (2x Cortex-A72 + 4x Cortex-A53)
Mass Storage	2GB LPDDR4 RAM 16GB eMMC RTC
Network connection	IEEE 802.11 ac/a/b/g/n WLAN Bluetooth 5.0 LTE Cat 4 with internal LTE modem's SIM holder LTE 2nd antenna connector for DIVERSITY mode is available (Don't connect anything here; it invalidate the certification) RJ45 Ports x2 for Ethernet LAN connection
Peripherals to be supported	USB2.0 (x3) USB3.0 USB type-C HDMI RJ45 (x2) RS232 on D-SUB DB9 MALE (x2)
Video	1x HDMI 1x DP (USB 3.0 Type-C alternate mode)
Operating System	Android 11
Type of installation	Fastening for integration use on industrial machine using threaded pins directly on the mechanical plate.
Power Supply	Nominal: 12 VDC with 2,5mm jack with lock
Battery model	CR2032 (internal battery not replaceable)
Operating temperature in user environment	-20°C/+70°C **
Exposed to limit areas of 2000 m a.s.l.	
Humidity	0~95% @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

C31XXXXYY.BBB software version, where:

- XXX is DMV values customized version
- YY is the revision
- BBB is the BIOS version

Software version **C31** 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:

- **FCC - Part 15 certificate***
- **UL certificate***
- **User manual***

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

The device also meets the requirements of the following standards:

- **UL 62368-1 3rd edition**

3.4 FCC Regulatory Notices

FCC references to product certification:

- **Contains FCC ID: 2ALZB-AW276 and Contains FCC ID: XMR201903EG25G**

FCC Regulatory Notices

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 cause undesired operation.

Caution: Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void user's authority to operate the equipment. This equipment has been tested and found to comply within 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:

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

3.5 ISED Canada Regulatory Notices

ISED references to product certification:

- **Contains IC: 22688-AW276 and Contains IC: 10224A-201903EG25G**
- **Product Marketing Name (PMN): AWCM276-DMV**
- **Hardware Version Identification Number (HVIN): AWCM276-DMV**

ISED Canada Regulatory Notice

This device is compliant with ISED Canada license-exempt RSS standards.

Operation is authorized under the following two conditions:

- 1 - the device may not cause harmful interference;
- 2 - the device must accept any interference received, even if it compromises operation.

RF Exposure information

FCC:

This device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device complies with the safety requirements for RF exposure for mobile (>20 cm) use conditions in accordance with FCC rule part 2.1091.

ISED Canada:

This equipment complies with ISED Canada RSS-102 radiation exposure limits set forth for the general population. This equipment complies with the safety requirements for RF exposure in accordance with RSS-102 Issue 5 section 2.5.2 for mobile (>20 cm) use conditions.

The minimum compliance distance is 27 cm.

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 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 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-C31-DMV** will be connected.



Warning! Do not mount the **SYS-C31-DMV** on machines containing other radio modules.



Warning! Do not change the antenna of **SYS-C31-DMV**.



Warning! Install and use the device (antenna) more than 20 cm away from the human body.



Warning! This equipment complies with FCC and ISED Canada (RSS-102) radiation exposure limits set forth for extremity SAR and use in contact with it. The highest SAR value when tested a separation distance of 20cm for extremity use is under the limits.






Warning! The integration of the SYS-C31-DMV in a finished product must be in compliance with the following rules (reported on the appropriate US and Canadian government databases, by searching for FCC ID or IC indicated above).

These rules provide in particular the obligation to:

- do not mount the SYS-C31 on machines containing other radio modules
- do not change the antenna
- install and use the device (antenna) more than 16.1 cm away from the human body
- do not install the product in such a way as to cover the labels.

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
	UL marking
	Caution! Risks deriving from not reading the instructions.
	Symbol used to indicate the need to consult the instruction manual before using the equipment.

5 Characteristics and components of the device

The **SYS-C31-DMV** device is a gateway enclosed in a metal box with a heat sink.



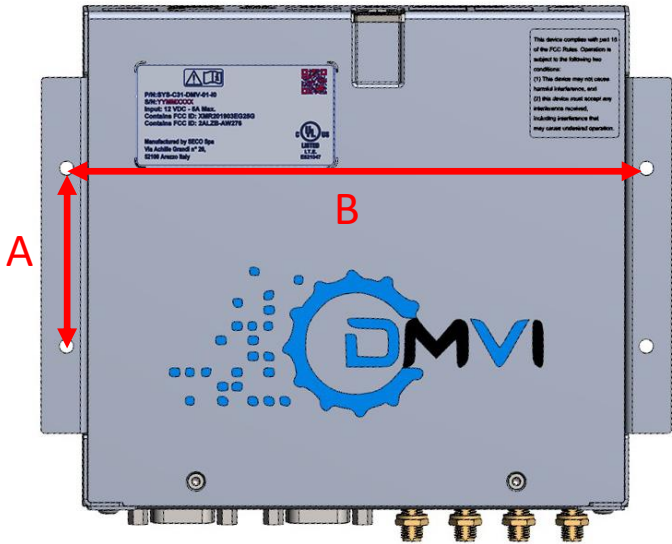
Caution! When running, the device can reach very high temperatures, causing the danger of burns when in contact with the heat sink.

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

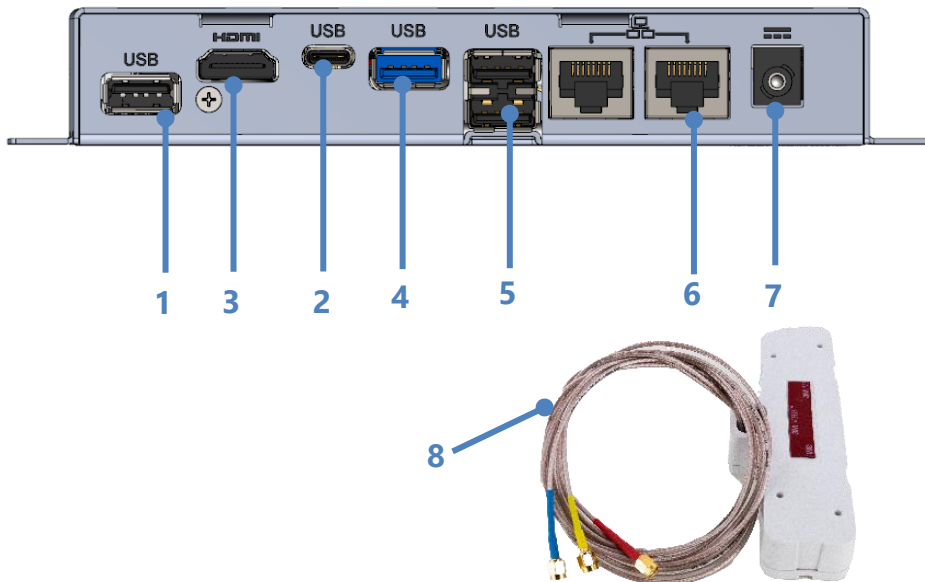
The inserts are the only fastening system to integrate the device on any of the customer's machines.

5.1 Measurement layout

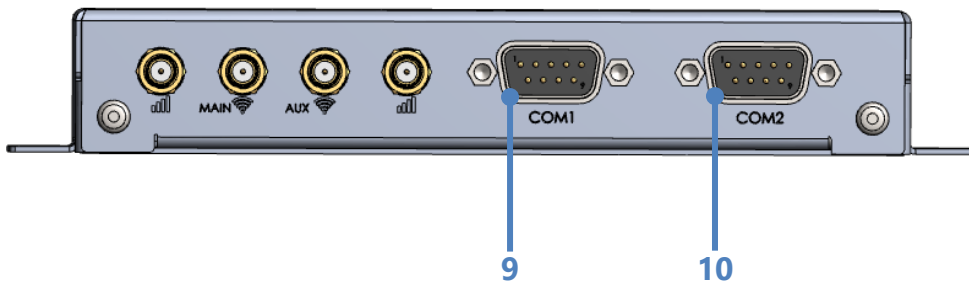
Length	177 mm
Width	150 mm
Height	26 mm
Centre-to-centre distance of fastening holes A	50 mm
Centre-to-centre distance of fastening holes on different flanges B	162,8 mm

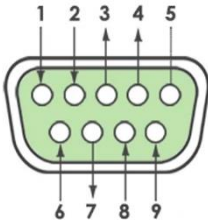
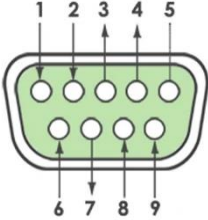


5.2 Components



POS	DESCRIPTION
1	USB 3.0 Type-A
2	USB connector type-C, prot. 3.0
3	HDMI port
4	USB connector type-A, prot. 3.0
5	USB connector type-A, prot. 2.0
6	Ports Ethernet
7	Power supply input
8	<p>Antenna:</p> <ul style="list-style-type: none"> Manufacturer= Dynaflex Model= 814_1000RG316_SMMRP Cables length= 1000 mm <p>ORANGE SMA MALE RP connector - LTE CONNECTOR</p> <p>BLUE SMA MALE RP connector - WiFi/BT Main connector</p> <p>RED SMA MALE RP connector - WiFi/BT Aux connector</p>



POS	DESCRIPTION																		
9	<p>RS485:</p>  <table border="1"> <tr><td>PIN1</td><td></td></tr> <tr><td>PIN2</td><td></td></tr> <tr><td>PIN3</td><td>D+</td></tr> <tr><td>PIN4</td><td></td></tr> <tr><td>PIN5</td><td>GND</td></tr> <tr><td>PIN6</td><td></td></tr> <tr><td>PIN7</td><td>D-</td></tr> <tr><td>PIN8</td><td></td></tr> <tr><td>PIN9</td><td></td></tr> </table>	PIN1		PIN2		PIN3	D+	PIN4		PIN5	GND	PIN6		PIN7	D-	PIN8		PIN9	
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6 Permitted environmental conditions

6.1 Transport and storage environmental conditions

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

Room temperature range	-20 °C ÷ + 70 °C
Relative humidity range	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 -20 °C to + 70 °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

7.1 Installing the device

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




Warning! Be sure to fix the device by fastening the screws (if it will be mounted on machine).



Warning! It's forbidden to install the device on wall.

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

Power supply	<p>Only power supplies certified for the target market and complying with the regulations in force for this specific application must be used.</p> <p>+ 12 V DC</p> <p>Maximum electrical current deliverables to the device = 5 A</p> 
Minimum power required	20 W

To install the device properly on 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	Prepare the machine /sheet/other making 4 holes of 4mm each, spaced according to the hole spacing;
3	Fix device to the machine, using 4 screws that will be screwed in matching holes in the plate with the 4 holes made in step 2 ;
4	Proceed to connect the electric supply to the device. Once inserted, turn the connector clockwise in order to lock it in place;
5	Proceed to electrically connect the destination machine.



7.2 Installing the antenna

The device is supplied with an antenna included in the package.

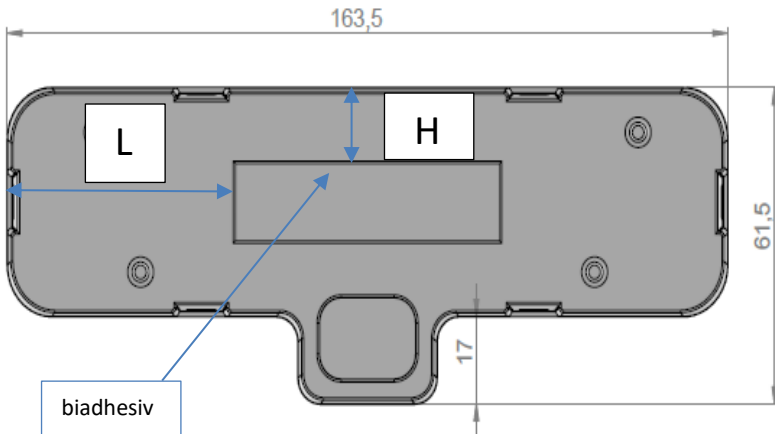
To proceed with the mechanical installation of the antenna properly to the device, follow the procedure below:

- 1 Make sure the electric connection on the destination machine is off and the electric power supply is disconnected from the device;

Attach the plastic box that encloses the antenna to the customer's target machine, using the double-sided adhesive on the bottom of the cover from which the 3 cables come out.

Position of the fixing double-sided adhesive:

- 2
 - **H** = 14 mm
 - **L** = 51 mm
 - Depth of the slot for housing the double-sided adhesive = 0.4 mm (the double-sided protrudes 0.2 mm from the top)
 - Double-sided adhesive size = 12mm x 58mm x 0.6mm



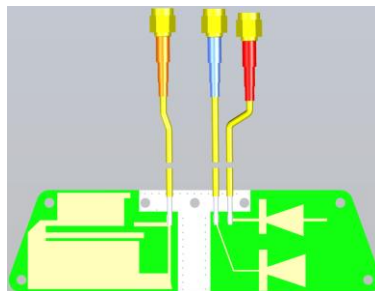
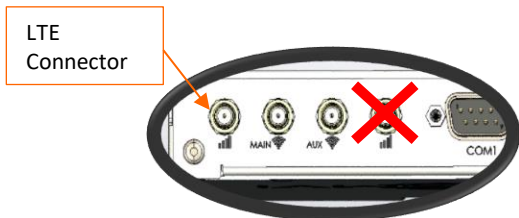
To proceed with the electrical installation of the antenna properly to the device, follow the procedure below:

- 1 Make sure the electric connection on the destination machine is off and the electric power supply is disconnected from the device;

The correct connection of the antenna to the SYS-C31-DMV must comply with the following scheme:

- **ORANGE** SMA MALE RP connector : connect to the LTE connector (the most external of the 4 available).
- **BLUE** SMA MALE RP connector : connect to the second connector from the left, renamed MAIN.
- 2 • **RED** SMA MALE RP connector : connect to the third connector from the left, renamed AUX.

**⚠ ATTENTION: DO NOT USE THIS CONNECTOR!
CONNECTING AN ANTENNA IN THIS CONNECTOR WOULD
INVALIDATE THE CERTIFICATION!
LEAVE THIS "SMA FEMALE RP CONNECTOR" ALWAYS FREE AND
COVERED BY THE CAP.**



8 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.



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

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).

