Cube Plus
USER'S MANUAL

INDEX

Fare clic o toccare qui per immettere una data.

1 - Foreword 3

1.1 - PACKAGE CONTENT 3

3 - Warning and precautions 6

3.1 - SAFETY RULES 8

3.2 - PRECAUTIONS 10

4 - Description 11

4.1 – Connectors DESCRIPTION 12

4.2 - LAN 12

4.3 - USB 12

5.1 - SIM CARD INSERTION 13

5.2 - External antenna 13

5.2.1 - Instructions for using the antenna 13

6 - Power supply 13

7 – Mounting Options 15

7.1 - Wall Mounting 15

7.2 - DIN Mounting 15

8 – LABEL 17

1 - FOREWORD

We kindly require you to read this manual carefully in order to be able to use the CUBE PLUS (code AC GTW01) device as well as possible.

This User Guide is related to all variants of the CUBE PLUS:

- CUBE PLUS AP
- CUBE PLUS NA
- CUBE PLUS XA
- CUBE PLUS XC
- CUBE PLUS XE
- CUBE PLUS WAN

1.1 - PACKAGE CONTENT

The product package contains the following material:

- CUBE PLUS
- Antenna
- User manual

2 - Technical features

2.1 PHYSICAL DESCRIPTION	
SIZES	150mm x 134 mm x 48 mm (whole)
WEIGHT	311g
OPERATING TEMPERATURE	From -10°C to +65°C
HUMIDITY	From 0 to 95% not condensed

2.2 EXTERNAL CONNECTIONS	
TELEPHONY	2-pole external terminal
LAN (4)	RJ45 connectors
RS232 (2)	RJ11 female connectors
USB	Type A USB
ANTENNA (2)	SMA female connector
POWER SUPPLY INPUT	12 ÷ 24 Vdc, 0.8 A max
RS485	3-pole external screw terminal
AUX-IN/OUT	4-pole external screw terminal
RST	Push Button

2.3 CONSUMPTION	
AVERAGE CONSUMPTION	Standby/Typical application: 3,12W Maximum application: 6,52W

2.4 FEATURES OF THE TELEPHONE (TA) CONNECTION POINT	
INTERFACE	2-pole external terminal
CALL MODE	Originated call (MOC); Terminated call (MTC)
INPUT DIALLING	DTMF
COMPLIANT WITH	ETSI ES 201 970 V1.1.1
CALL CURRENT LEVEL (RING)	35Vrms ± 10% + 38Voffset
CALL CURRENT FREQUENCY	25Hz ± 5%
CALL CURRENT MODULATION	1,0s emission; 4,0s silence
LOCAL TONE MODULATION ACCURACY (EMISSION / SILENCE)	± 1%
SHORT CIRCUIT CURRENT	>35mA
TELEPHONE CONNECTION POINT CHARACTERISTIC IMPEDANCE	750Ω // 150nF + 270Ω
MAXIMUM TELEPHONE LINE LENGTH	500 meters (depending on the number of connected devices)

2.5 FEATURES OF THE LAN CONNECTION POINT	
INTERFACE	4 x RJ45 (LAN 10/100)
COMPATIBILITY	IEEE 802.3

2.6 FEATURES OF THE RS232 CONNECTION POINT	
INTERFACE	RJ11 CONNECTOR
COMPATIBILITY	RS232

2.7 FEATURES OF THE RS485 CONNECTION POINT	
INTERFACE	3-pole external screw terminal
COMPATIBILITY	RS485

2.8 FEATURES OF THE USB CONNECTION POINT	
INTERFACE	Type A connector
COMPATIBILITY	USB 2.0

CUBE PLUS XE

2.9.1 MODEM PERFORMANCES	
BAND	FDD B1/B3/B7/B8/B20/B28A; WCDMA B1/B3/B8; GSM/EDGE B3/B8
RF power	2G (GSM): - LB: Class 4(2W, 33dBm ± 2dB) Class E2(0.5W, 27dBm ± 3dB @EDGE) HB: Class 1(1W, 30Bm ± 2dB) Class E2(0.4W, 26dBm +3/-4 dB @EDGE) 3G (WCDMA): Class 3(0.25W, 24dBm +1,7/-3,7 dB) 4G (FDD & TDD): Class 3(0.2W, 23dBm ± 2,7 dB @1RB))
DATA TRANSFER	LTE category 4 LTE FDD: Max 150Mbps (DL)/Max 50Mbps (UL) DC-HSPA+ 42 Mbps)
Modulation	E-GSM/DCS: GMSK, 8PSK UMTS: QPSK LTE: QPSK, 16 QAM and 64 QAM

2.10.1 BLUETOOTH	
Frequency range	2402 ÷ 2480 MHz
RF power	BLE: 8.2 dBm
Modulation	GFSK

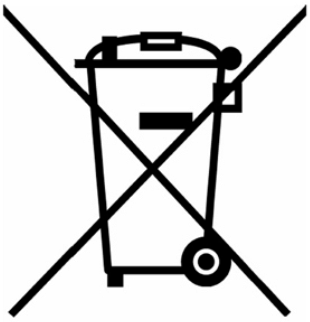
CUBE PLUS XA	**2.9.2 MODEM PERFORMANCES**	
	BAND	FDD B1/B2/B3/B4/B5/B7/B28A; WCDMA B1/B2/B4/B5; GSM/EDGE B2/B3/B5/B8
	RF power	2G (GSM): - LB: Class 4(2W, 33dBm ± 2dB) Class E2(0.5W, 27dBm ± 3dB @EDGE) HB: Class 1(1W, 30Bm ± 2dB) Class E2(0.4W, 26dBm +3/-4 dB @EDGE) 3G (WCDMA): Class 3(0.25W, 24dBm +1,7/-3,7 dB) 4G (FDD & TDD): Class 3(0.2W, 23dBm ± 2,7 dB @1RB))
	DATA TRANSFER	LTE category 4 LTE FDD: Max 150Mbps (DL)/Max 50Mbps (UL) DC-HSPA+ 42 Mbps)
	Modulation	E-GSM/DCS: GMSK, 8PSK UMTS: QPSK LTE: QPSK, 16 QAM and 64 QAM
	2.10.2 BLUETOOTH	
	Frequency range	2402 ÷ 2480 MHz
	RF power	BLE: 8.2 dBm
	Modulation	GFSK
CUBE PLUS AP	**2.9.3 MODEM PERFORMANCES**	
	BAND	WCDMA B1,B5,B6,B19,B8 FDD B1,B3,B5,B8,B9,B18(B26), B19,B28
	RF power	3G (WCDMA): Class 3(0.25W, 24dBm +1,7/-3,7 dB) 4G (FDD & TDD): Class 3(0.2W, 23dBm ± 2,7 dB @1RB))
	DATA TRANSFER	LTE category 4 LTE FDD: Max 150Mbps (DL)/Max 50Mbps (UL) DC-HSPA+ 42 Mbps)
	Modulation	UMTS: QPSK LTE: QPSK, 16 QAM and 64 QAM
	2.10.3 BLUETOOTH	
	Frequency range	2402 ÷ 2480 MHz
	RF power	BLE: 8.2 dBm
	Modulation	GFSK

3 - WARNING AND PRECAUTIONS

This product may be installed by qualified personnel only.

INFORMATION TO THE CUSTOMERS OF PROFESSIONAL EQUIPMENT

To the senses of the art. 13 of the Decree Legislative 25 July 2005, n. 151 “Realization of the Directives 2002/95/CE, 2002/96/CE and 2003/108/CE, related to the reduction of the use of dangerous substances in the electric equipments and electronics, as well as to the disposal of the refusals”



The symbol of the crossed bin, printed on the equipment or on its package, points out that the product at the end of its life cycle must be separately picked up from the other refusals.

Particularly, the diversified collection of the present equipment, reached to the end of life, is organized and managed:

a) directly from the customer, in the case in which he decides to unravel of equipment without replacing it with a new equipment, equivalent and having the same functions;

b) from the producer, understood as the subject that has first introduced and commercialized in Italy or resells in Italy with his own mark the new equipment that has replaced the preceding one, in the case in which, contextually to the decision to unravel of the equipment, reached to the end of life, the consumer purchase a product type equivalent and having the same functions. In such last case the consumer can ask to the producer for the withdrawal of the present equipment within and not over 15 consecutive calendar days from the delivery of mentioned new equipment.

The suitable diversified collection of the disused equipment for recycling, to the treatment and the compatible environmental disposal, contributes to avoid possible negative effects on the environment and on the people health and it favors the reemploy e/o recycle of some materials of which the equipment is composed.

The unauthorized disposal of equipments from the consumer behaves the application of the sanctions according to the normative of the current law.

CUBE PLUS XE

On what concerns CE, the equipment must be compliant with essential safety requirements and this has to be guaranteed by manufacturer or directly by the Company that takes under its responsibility the direct launch of the equipment itself on the market with its brand name or as an importer.

The product has to meet to certain and specific safety requirements for people, goods, animals and often for environmental needs as well. These last requirements are the main and essential ones and are established by European harmonization directives applicable in all the 27 member countries of EU and in other 3 countries member of the so-called European Economic Area (Norway, Iceland and Liechtenstein).

Product compliance with main requirements has been evaluated and checked by the manufacturer by following specific procedures (Conformity Clearance Procedure), whose content is specified by each single harmonization directive.

- (Vdc) – **Direct current**

CUBE PLUS XA

Contains FCC ID: 2AZ9H-CUBEPXA

Contains FCC ID: RI7LE910CXLA

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment

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.

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 product complies with FCC and ISED radiation exposure limits set forth for an uncontrolled environment. The antenna should be installed and operated with minimum distance of 20 cm between the radiator and your body.

ANATEL

XXXX-XX-XXXXX

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidante autorizados

CUBE PLUS AP

Sp

3.1 - SAFETY RULES

The passage from a cold room to a warm one may cause condensate to build up inside the device. In these cases, it is recommended to wait at least 1 hour before using the product in order to avoid any malfunction.

Attention: connect the equipment with an outlet installed in the immediate proximity and easily accessible for the operator. Under no circumstance, it is allowed to cut the mains plug to connect the equipment securely.

Attention: electrical shock risk. The power supply used for this device requires lethal voltage levels.

The case includes a connection compartment and arrangements. You may have access to it after having removed a closure cover by means of a tool. The underlying protection against direct contacts with live parts shall never be removed, except for authorised technicians.

Avoid having access to the internal parts of the device.

If any object or liquid should penetrate the device, detach the power supply cable immediately. Before reusing the device, have it checked by qualified personnel.

For assistance, please apply to qualified personnel.

In case of intervention, always make sure that the device is completely and efficaciously disconnected.

In case of fire, avoid using water as an extinguisher.

Since the GSM system is a radiofrequency technology (RF), it may interfere with the operation of any other phone set or electronic device which is not properly protected against radiofrequency energy.

CUBE PLUS shall be arranged at least 2 m far from any electronic equipment (telephone set, etc) to avoid any interference problems.

Never put your hands on the antenna when the device is in use.

Never use the device if the antenna is visually damaged. In this case, ask for a replacement through the customer-care service.

During the **CUBE PLUS** functioning, you should keep at least at 20cm far from the antenna.

People with auxiliary systems such as pacemakers and electro acoustic devices (hearing aids) should keep at a safe distance.

Plug RS485, DIDO, FXS, PWR UART ports, even if not used, with the correct connector.

3.2 - PRECAUTIONS

Attention: many of the components used in this device are sensitive to electrostatic discharges.

If you should handle connection cables, please disconnect the device and avoid any direct contact with the terminals of conductors.

For cleaning operations use a soft and dry piece of cloth or a piece of cloth soaked in a light detergent solution. Never use any type of solvent, such as alcohol or gasoline, in order to avoid damaging any finish.

The non-observance of the precautions might permanently damage the device.

The CUBE PLUS-EU device will be installed within restricted access area and it is accessible only by highly qualified staff.

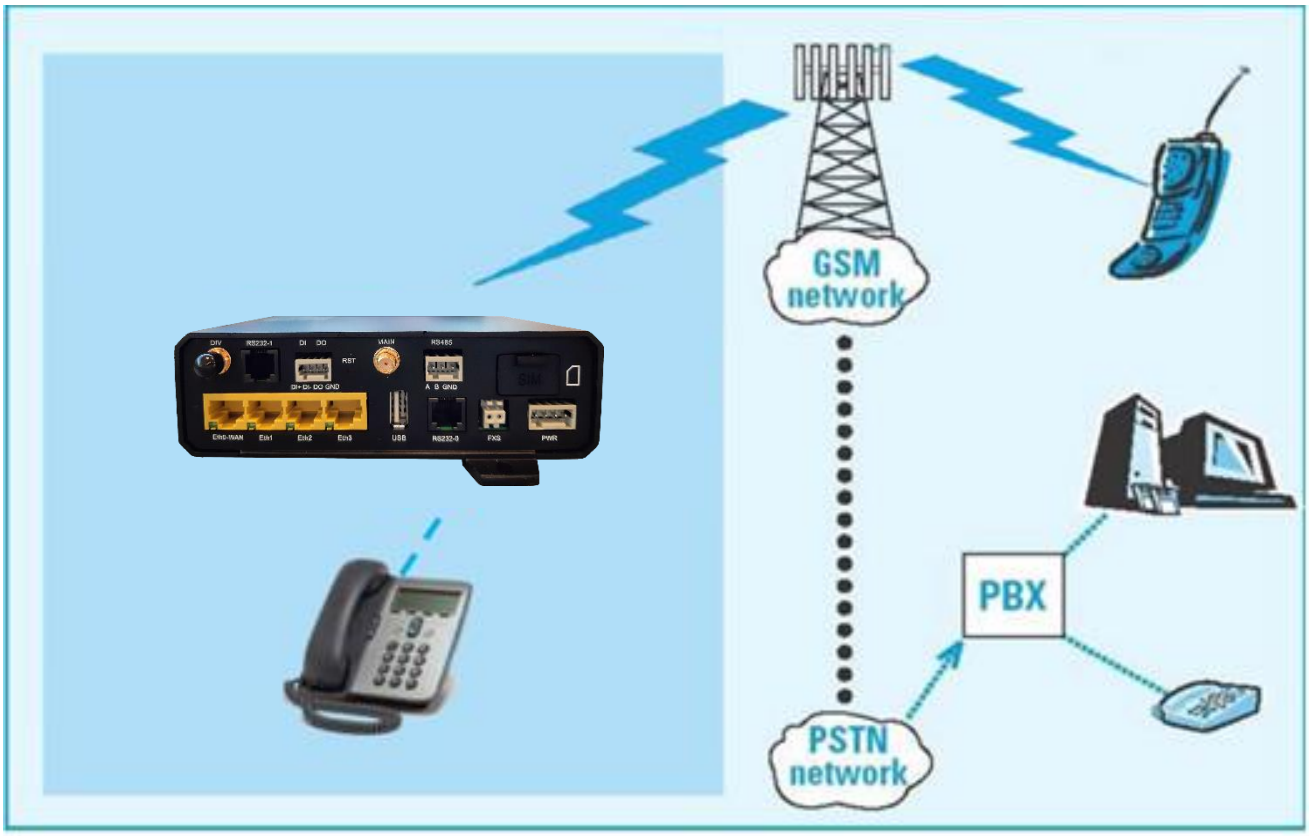
4 - DESCRIPTION

CUBE PLUS is the easiest way to get telecommunication services to premises that cannot be reached by telephone landlines, but where there is adequate cellular telephone coverage.

Through the mobile network, **CUBE PLUS** allows you to make/receive calls from standard telephones, PBX, fax, modem, without difference with respect to a standard PSTN line.

Voice, data and fax services require different phone numbers: during the installation the end-user will be assigned three different phone numbers, for voice, data and fax reception respectively.

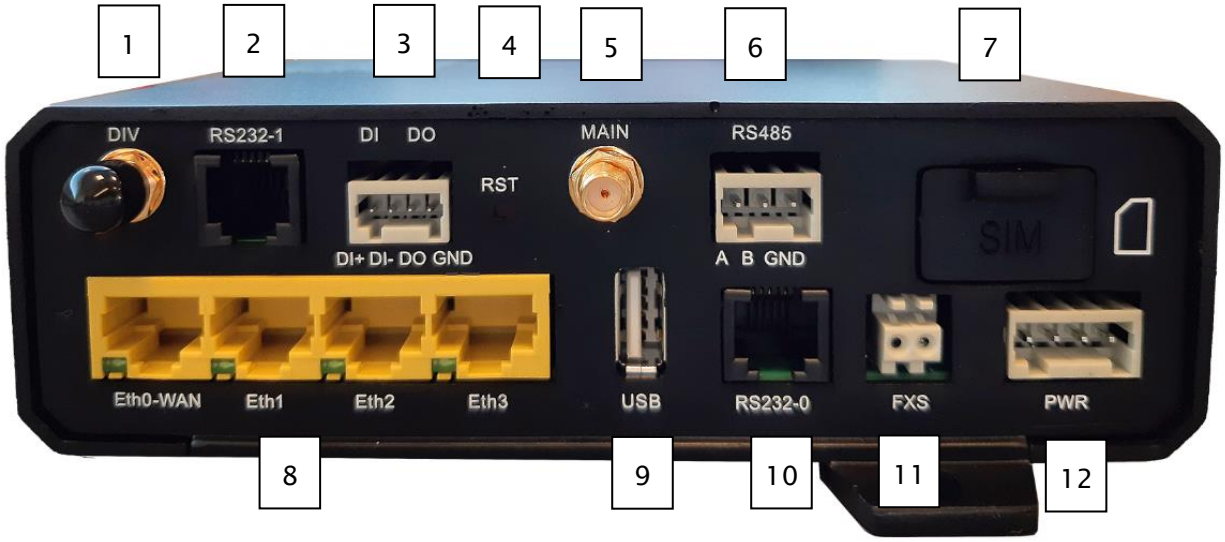
When making a call (both voice, data or fax), **CUBE PLUS** uses the main number (the voice number), while in order to receive a data or fax call, it is necessary that **CUBE PLUS** is called on its corresponding data or fax number.



4.1 – CONNECTORS DESCRIPTION

CUBE PLUS is arranged in a plastic case that shall be fastened to the wall by qualified installers.

Connectors and lighted signals are arranged on two sides: at the bottom and in the front.



The following is arranged at the bottom:

(1) Diversity antenna
(2) RS232 connection
(3) Digital input and digital output
(4) RESET Push Button
(5) MAIN antenna
(6) RS485 connection point
(7) Sim holder
(8) RJ45 (4x) 10/100 connectors
(9) USB 2.0
(10) RS232 connection
(11) FXS Telephony connection
(12) Power supply 8-28 Vdc and RS232 (TX & RX)

4.2 - LAN

Four LAN 10/100 (type RJ45) socket is arranged on the CUBE PLUS.

Use a LAN 10/100 cat.5 network cable and connect it to the device's LAN socket.

4.3 - USB

Two USB host v2.0 sockets (A type) are arranged on the CUBE PLUS.

The USB ports allow you to connect an USB equipments like USB memory key, also running at different speed (high speed and full speed).

5 - Connection and commissioning

5.1 - SIM CARD INSERTION

To have access to the SIM card compartment, it is necessary to remove the rubber cover of the device and then to insert the SIM card with the circuit facing down and the beveled corner must be to the upper left, as shown in the figure.

5.2 - EXTERNAL ANTENNA

The antenna supplied might fail to provide for an optimal reception of the RF signal in well-defined operating conditions. For this reason, **CUBE PLUS** is also arranged to operate with an external omnidirectional antenna.

The antenna includes a dipole, a wall fixing metal bracket and an extension cable.

IMPORTANT: the external antenna installation should be performed by qualified personnel only.

The external antenna should have the following properties:

- Frequency Range (MHz) : 698～960/1710～2690
- VSWR. ≤2.0
- Gain peak (dBi): ¼
- Input Impedance(Ω): 50
- Polarization: Vertical
- Connector Type: SMA-J

5.2.1 - Instructions for using the antenna

The antenna shall be arranged at least 2 m far from any electronic equipment that may be available in the environment and at least 15 cm far from any obstacle. It shall be put into such a position that it can provide for a good reception of the radio field.

If the local equipment should start showing any malfunction or disturbance when the equipment is in use, move the antenna to another place.

Avoid using the monopole when the equipment is installed in a closed or particularly shielding environment.

Use the external antennas with a nominal impedance of 50Ω.

Never put your hands on the antenna when the device is in use. This may compromise the quality of the connection and force **CUBE PLUS** to require a higher transmission power.

Never use **CUBE PLUS** if the antenna is visually damaged. In this case, it shall be replaced without any delay.

6 - POWER SUPPLY

The interface can be supplied by direct current with a 12-24 Vdc nominal voltage.

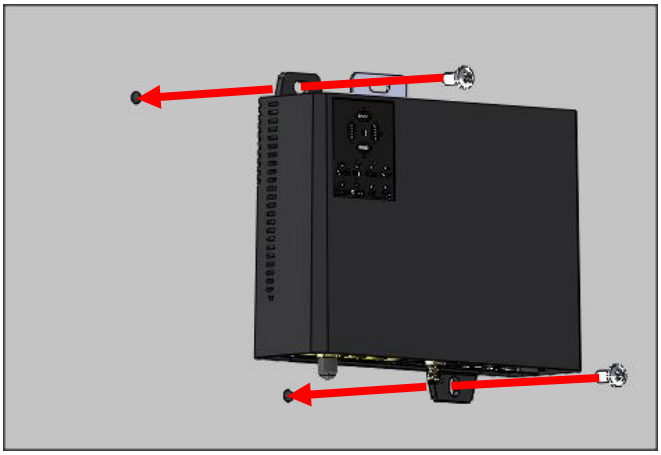
Equipment is intended to be supplied by d.c. power supply having a transient voltage of 1500 Vpeak

The equipment shall be powered by ES1 d.c. power supply at 12-24 Vdc and protected by means of external fuse rated 2 A placed on positive terminal.

7 – MOUNTING OPTIONS

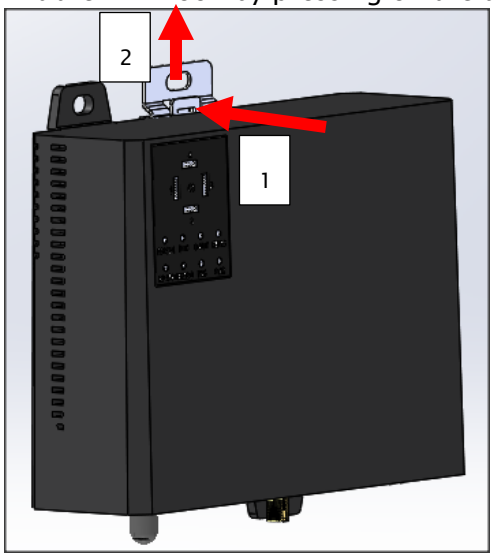
7.1 - WALL MOUNTING

Use the appropriate holes in the fixing tabs to screw n.2 screw #12 or M5

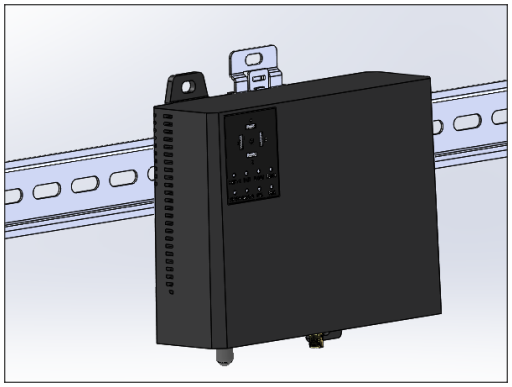
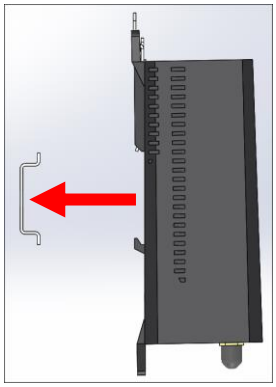


7.2 - DIN MOUNTING

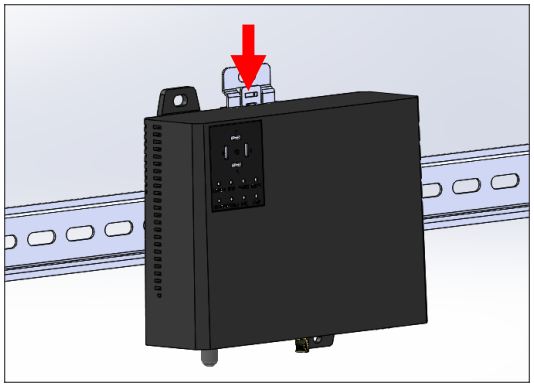
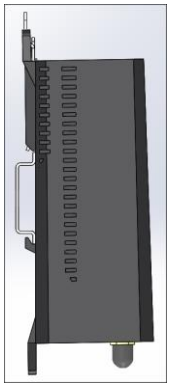
1. Lift the DIN hook by pressing on the tab and pulling up



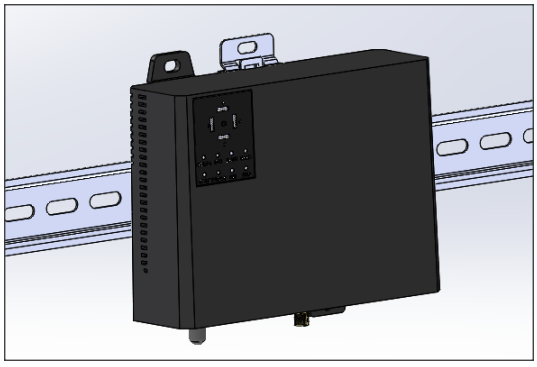
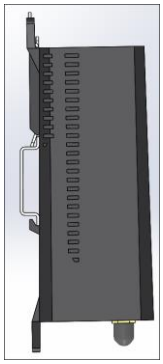
2. Hook the box to the DIN rail as follow:
    a. Place the Cube on the DIN rail

b. Push down the hook

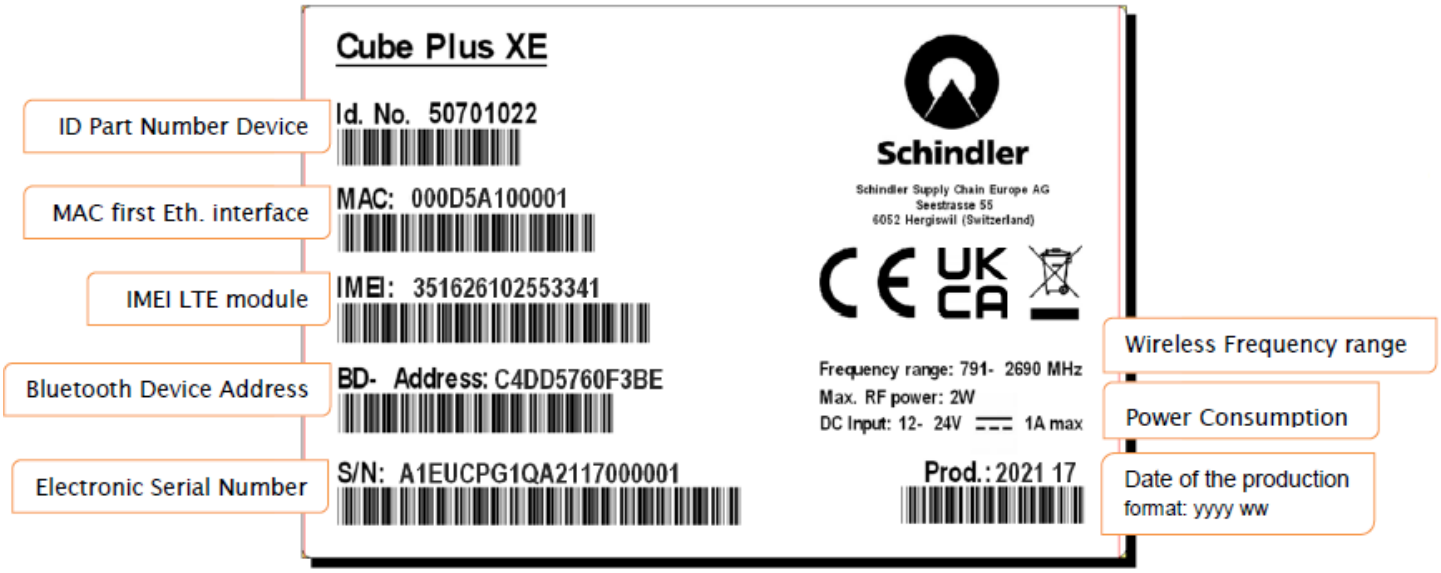



c. The Cube is hooked

8 – LABEL

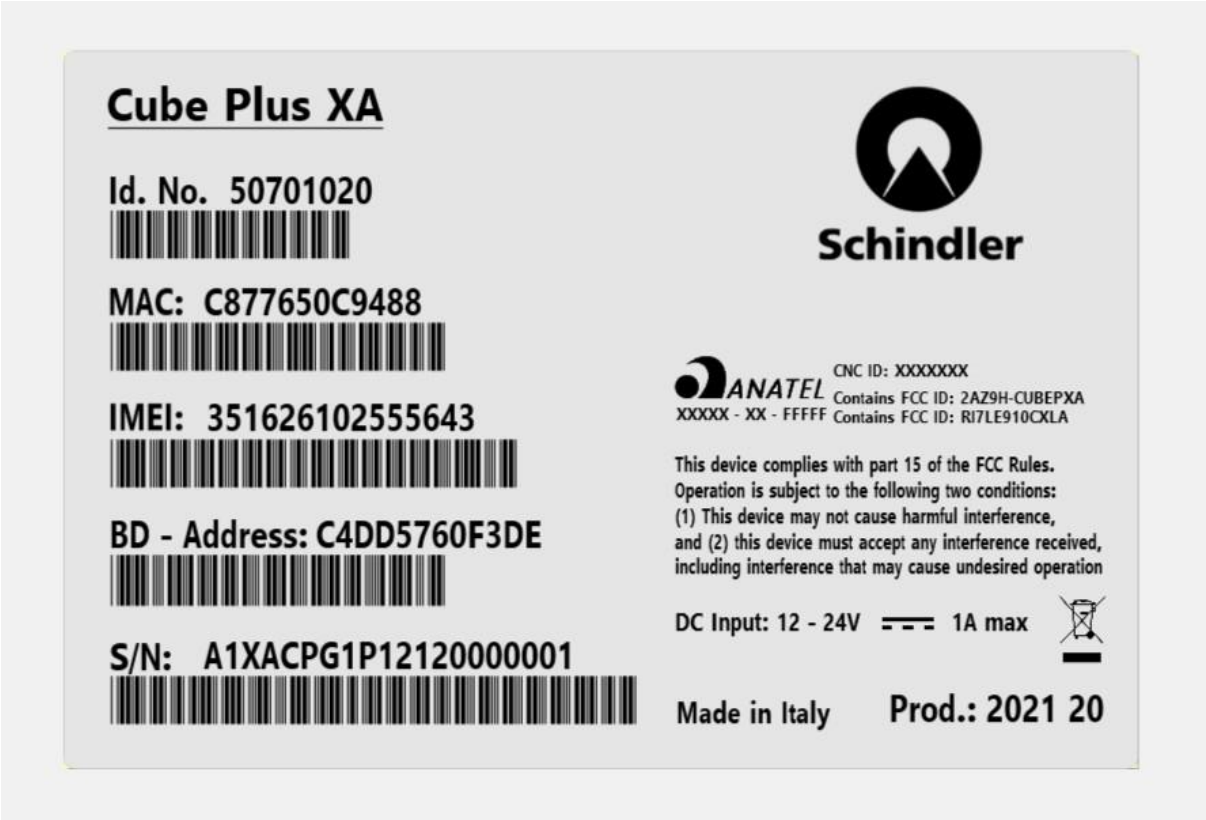
- CUBE PLUS XE



Technical specifications

Width:	90 mm
Length:	60 mm
Barcode:	Code 39
Supplier:	IdTronic
Part Number:	FB0900600CK50AH
Tiesse Internal code:	ETI033
Type Ribbon used:	Resin
P/n Ribbon compatible:	ID401100300TE, ID401100074E
Tiesse Internal code:	RIBBON4, RIBBON7

- CUBE PLUS XA



Technical specifications

Width:	90 mm
Length:	60 mm
Barcode:	Code 39
Supplier:	IdTronic
Part Number:	FB0900600CK50AH
Tiesse Internal code:	ETI033
Type Ribbon used:	Resin
P/n Ribbon compatible:	ID401100300TE, ID401100074E
Tiesse Internal code:	RIBBON4, RIBBON7

CUBE PLUS

- CUBE PLUS AP

Technical specifications

Width:	90 mm
Length:	60 mm
Barcode:	Code 39
Supplier:	IdTronic
Part Number:	FB0900600CK50AH
Tiesse Internal code:	ETI033
Type Ribbon used:	Resin
P/n Ribbon compatible:	ID401100300TE, ID401100074E
Tiesse Internal code:	RIBBON4, RIBBON7

CONFIDENT