

Hiberband Via: Quick Start Guide

In this Quick Start Guide you will find everything you need to get set up, apart from a drink to celebrate a successful installation.



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Welcome to your Hiberband Via gateway.

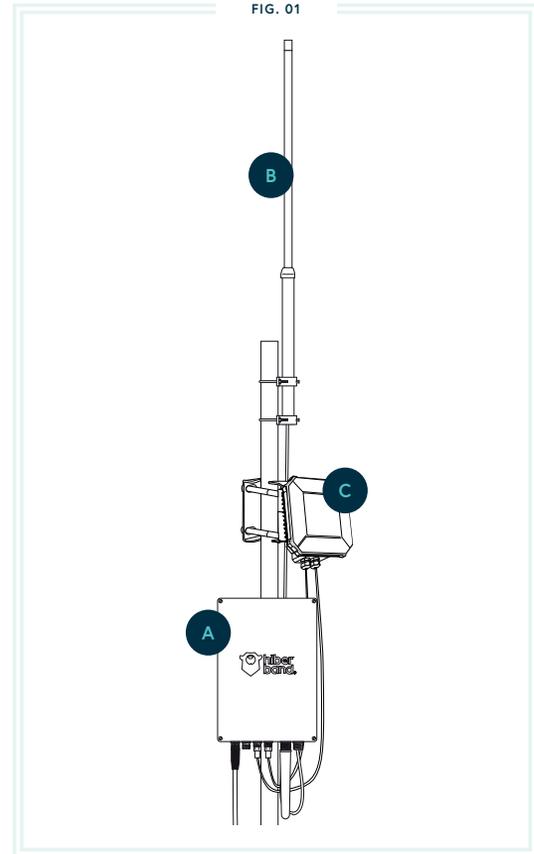
Thanks for ordering your Hiberband Via gateway. It really is the easiest and most affordable way to create a private LoRaWAN network in remote locations. The Hiberband Via gateway connects to the internet via the Inmarsat satellite network, and can be powered by a renewable energy source such as solar. Making it perfect for locations where conventional power and internet connectivity are not available.

The Quick Start Guide takes you through a typical Via gateway installation, step by step. If you need more detailed installation instructions, please visit hiber.global/support/via

To help you out, we've included an image of a complete installation of the Hiberband Via gateway (fig.01) and an **installation diagram** (Appendix01, page 38).

For more information on installing your Via gateway in the field, please see the **Hiberband Via: Field installation checklist**.

- A Hiberband Via gateway
- B Field LoRa antenna
- C BGAN terminal

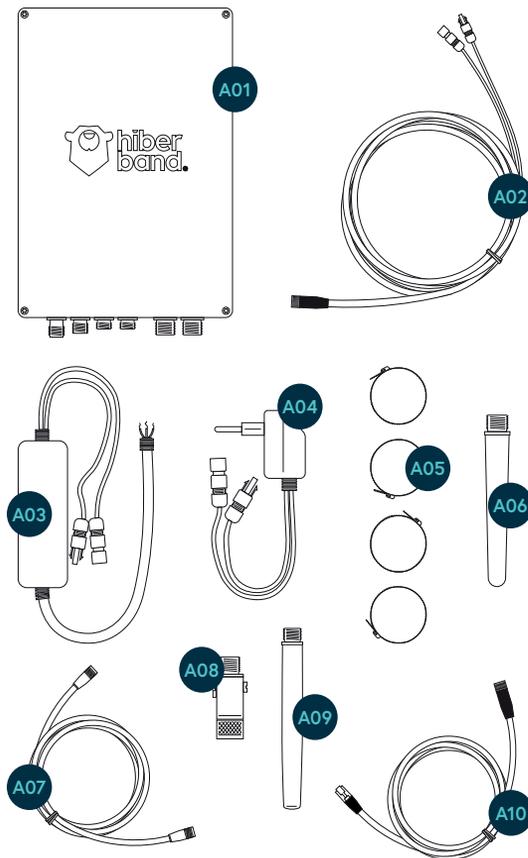


Quick Start Guide overview.

Before you start installation please check you have everything you need in the boxes A, B & C. The illustrations below show the contents of the boxes. Please note, the LoRa field antenna (**Box B**) is in some cases shipped separately by a local supplier instead of Hiber.

BOX A

- A01 Hiberband Via gateway
- A02 Power cable with MC4 connectors
- A03 AC/DC converter for outdoor usage with MC4 connectors
- A04 Wall mount AC/DC adapter with MC4 connectors
- A05 4x metal mounting straps
- A06 Wi-Fi antenna
- A07 LoRa antenna cable
- A08 Lightning protector
- A09 Quick start LoRa antenna (length: ~20cm)
- A10 Ethernet cable

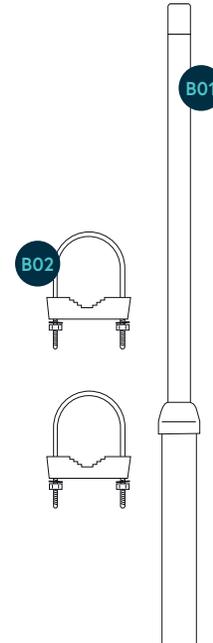


BOX B*

B01 Field LoRa antenna (length: ~160cm)

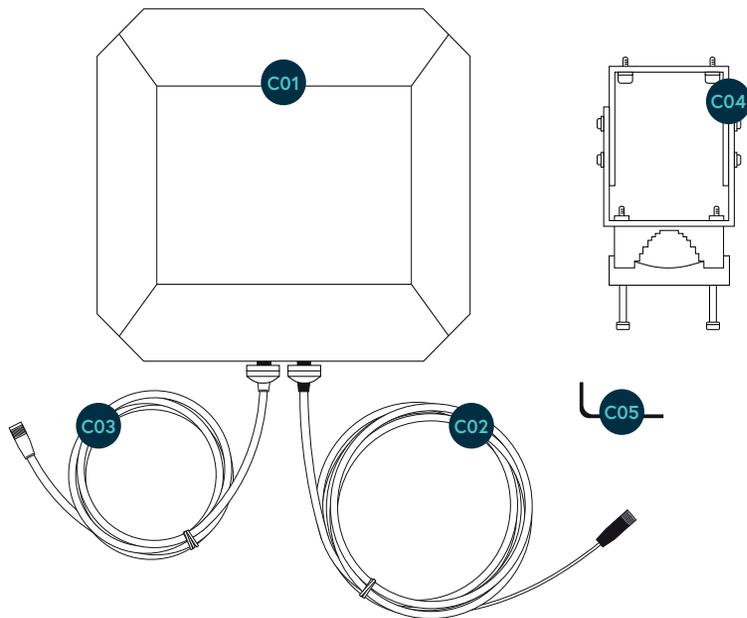
B02 Field LoRa antenna clamps

* The box components might differ slightly as the frequency used for LoRa communication differs from country to country.



BOX C

- C01** Cobham Explorer 540 terminal
- C02** Ethernet cable
- C03** Power cable
- C04** Pole mount kit
- C05** H5 5mm Hex/Allen key



Required installation tools:

- | (Electric) screwdriver set
- | Power drill (optional)
- | Wrench set
- | Screws and plugs (optional)

Preparing for the BGAN terminal installation.

- ! To successfully complete the steps described in this section an internet connection is required. Which might not be available in remote locations. So please make sure to complete all steps described in this section before installing the Via gateway and BGAN terminal in the field.
- ! Do not open the BGAN terminal enclosure without consulting Hiber. The enclosure has been waterproofed and opening it will compromise the waterproofing.

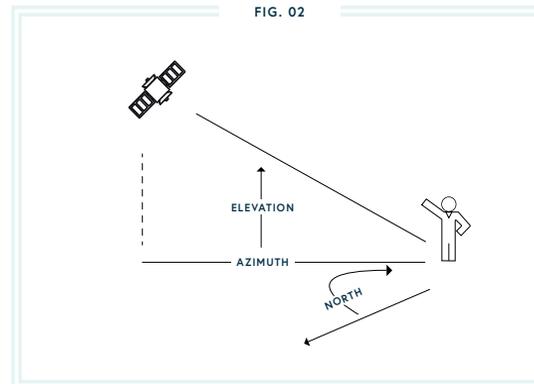
GEOSTATIONARY SATELLITE CONNECTION.

A Cobham Explorer 540 terminal is used to connect the Hiberband Via gateway to the Inmarsat satellite network. Inmarsat satellites are geostationary satellites, i.e. when looking from Earth into space the satellites are at a fixed point in the sky at all times. In order to establish a connection, the BGAN terminal needs to be pointed directly at the satellite.

The direction you need to point the BGAN terminal, differs per location. To identify the position of the geostationary satellite on the intended installation location, you will need to know 2 variables: Azimuth and Elevation (see fig. 02).

Azimuth tells you what direction to face and ranges from 0° to 360° , it starts with North at 0° .

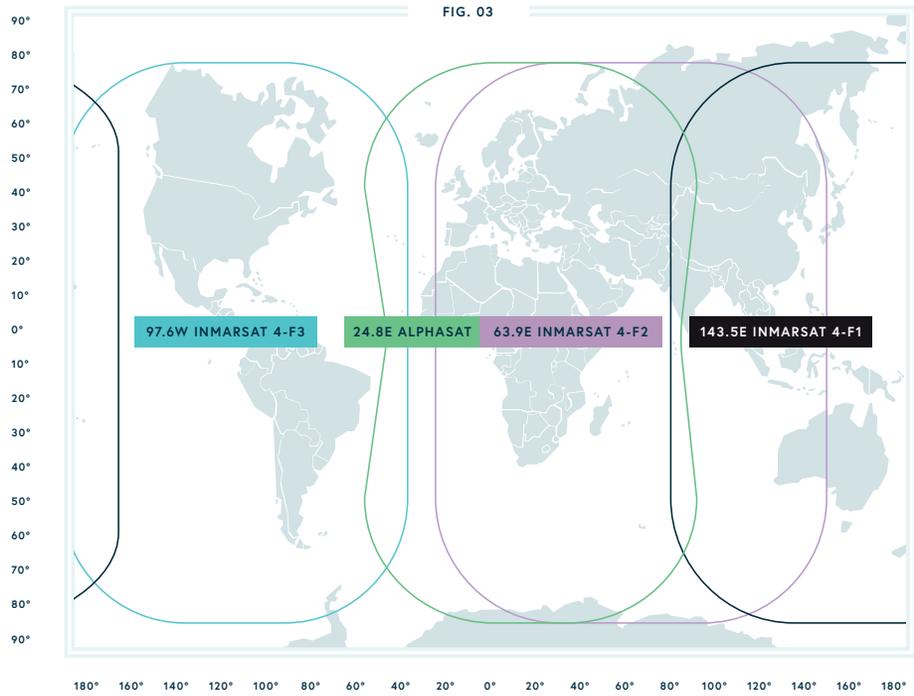
Elevation tells you how high up in the sky to look and ranges from 0° (at the horizon) to 90° (directly overhead).



FINDING THE AZIMUTH AND ELEVATION ANGLE FOR YOUR INSTALLATION LOCATION.

- I 1. Visit the website **www.dishpointer.com** and enter the installation location address or latitude and longitude.
- I 2. There are four Inmarsat satellites covering the globe. Fig. 03 shows you the areas that they cover and the name of the satellite to choose.
- I 3. From the dropdown menu, choose the satellite which you identified in step 2 and click 'Search'.
- I 4. If we take Amsterdam in the Netherlands as an example, the correct satellite would be 24.8E. ALPHASAT. When you searching using this example the information gives the following values:
Azimuth (true): 155.4°, Elevation: 27.3°.
- I 5. It's really important to record the Azimuth and Elevation for your specific location, as you cannot complete installing the BGAN terminal in the field without it.

Now you have everything needed to complete the installation in the field. Except, maybe, a flask of coffee!



Step by step installation.

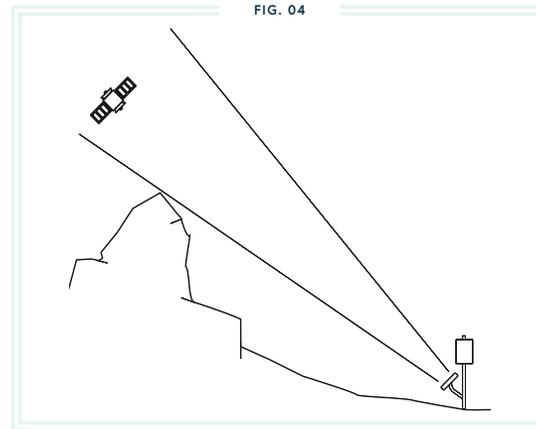
We know you can't wait to get started. But please refer to the **Hiberband Via: Field installation checklist** before starting with the installation. As not setting up the Via in the right location can really affect performance.

STEP 01: IDENTIFYING THE INSTALLATION LOCATION ON SITE.

At the installation site, identify the right structure and location on which to install the Hiberband Via gateway and BGAN terminal.*

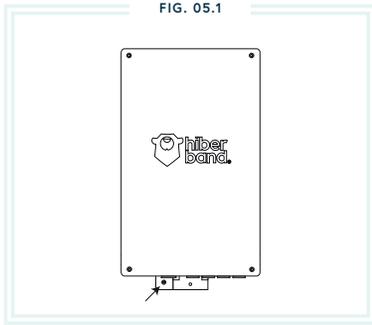
Use a compass to determine in which approximate direction the satellite is using the Azimuth you noted in Section 2.

To establish a connection with the satellite ensure a clear line of sight between the satellite antenna and the sky. There should be no obstructions, e.g a tree, building, pole. See fig. 04.

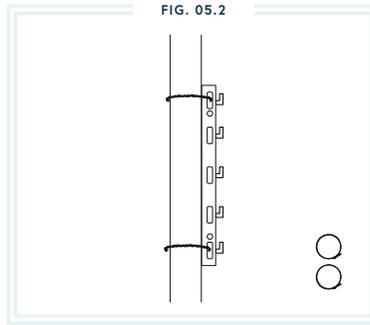


* Please note: The standard cables provided with the BGAN satellite terminal to connect to the Hiberband Via gateway are 2 meters long. If you plan to install the BGAN terminal further away from the Via gateway, please contact support@hiber.global.

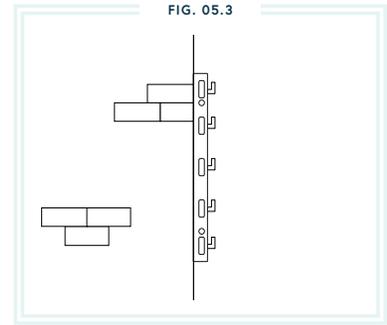
STEP 02.1: INSTALLING THE HIBERBAND VIA GATEWAY



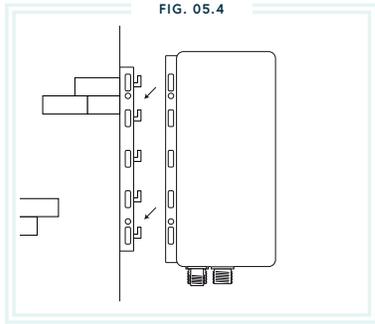
1. On the Via gateway, unscrew the bolt at the bottom of the mounting bracket and remove the holder out of the mounting bracket.



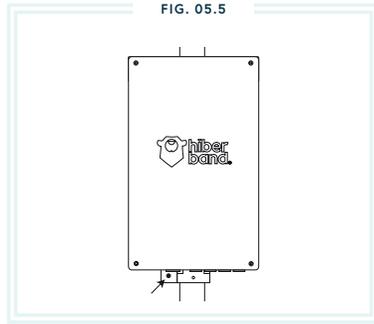
2. **Pole or rail installation.**
Fix the holder on a pole or rail, using the metal mounting straps **A05** (fig. 05.2).



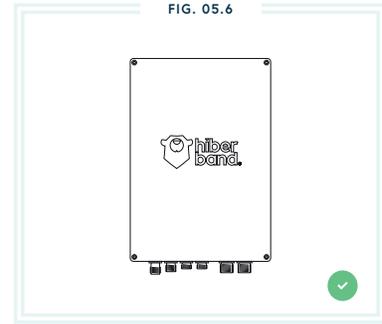
2. **Wall installation.**
Fix the holder on a wall, using wall plugs and screws – not included. (fig. 05.3).



- 3. Hang the Via gateway on the holder.



- 4. Secure the holder on the mounting bracket using the bolt removed in step 1.



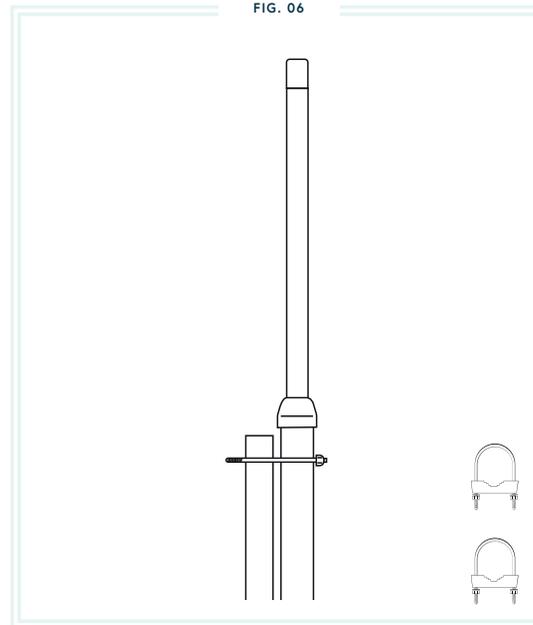
- 5. Make sure you install the Via gateway with the connectors facing down (fig. 05.6).

STEP 02.2: INSTALLING THE LORA ANTENNA.

We provide two LoRa antennas with the Via gateway:

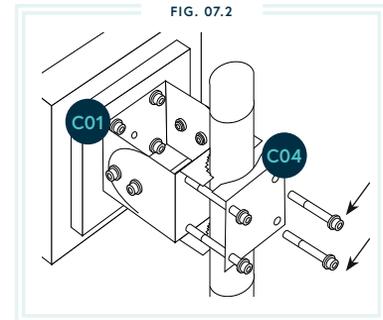
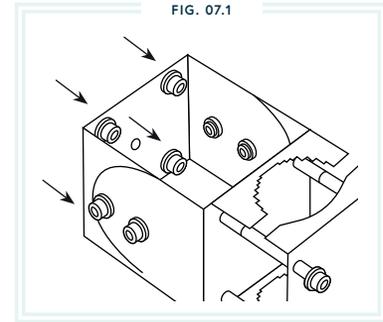
Field LoRa antenna **B01**: for optimal LoRa coverage when performing a field installation, install the Field LoRa antenna **B01** on a pole or rail using the LoRa antenna clamps **B02** (fig. 06).

Quick Start LoRa antenna **A09**: this antenna is perfect for testing purposes (e.g. to test the Via gateway before a field installation) as it can be screwed directly onto the Via gateway as described in step 3.1, no mounting required. Please note that this antenna offers limited LoRa coverage and is not suitable for a field installation.



STEP 02.3: INSTALLING THE BGAN TERMINAL.

1. Attach the mounting bracket **C04** to the BGAN terminal **C01** using the included hex key **C05** and the 4 screws.
2. Unscrew two of the long screws from the mounting kit to leave one side open for the pole (fig. 07.1).
3. Wrap the mounting kit with the attached BGAN terminal around the pole.
4. Remount the two remaining long screws. Do not tighten the screws completely until you have completed the pointing process in Step 5 (fig. 07.2).

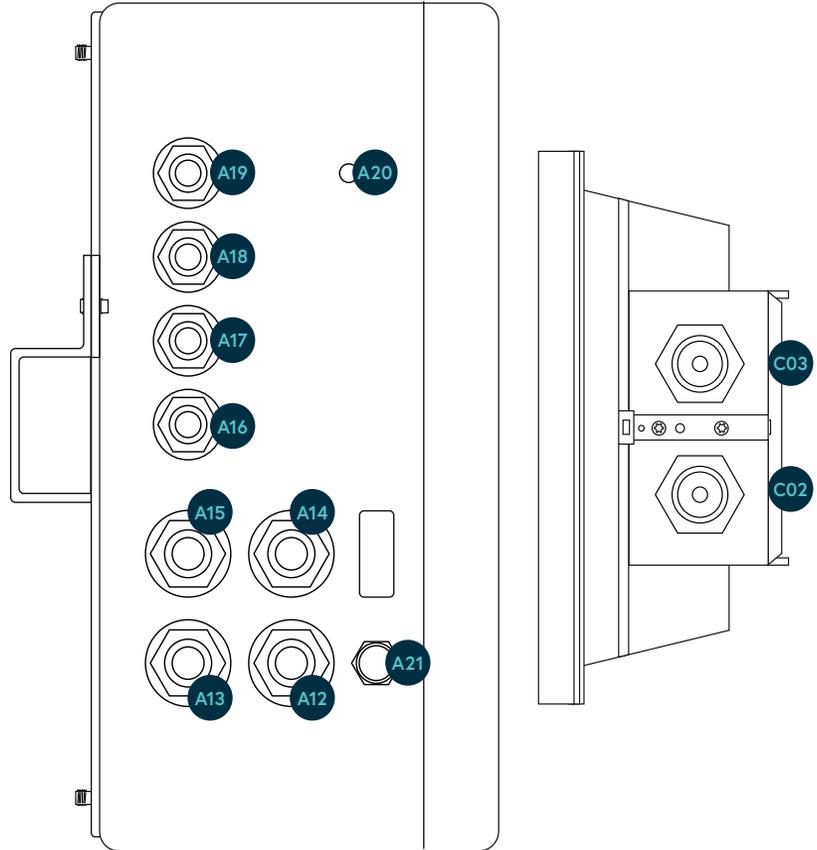


STEP 03: CONNECTING THE CABLES AND ANTENNAS.

The Via gateway has a series of connectors on its base and the BGAN terminal has 2 cables coming out of its enclosure.

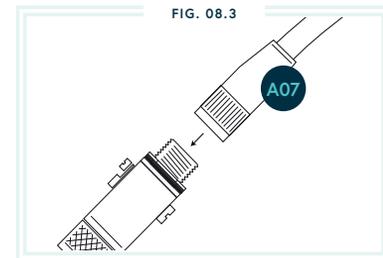
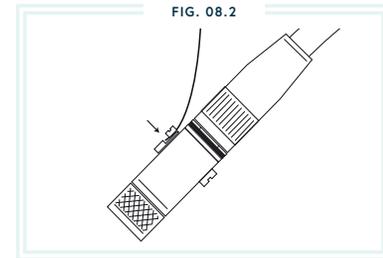
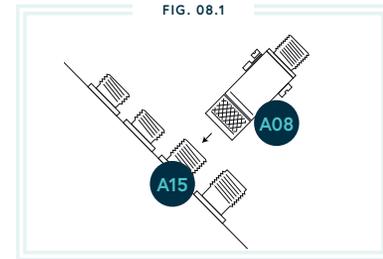
Please connect the cables and antennas to the correct Hiberband Via gateway connectors as explained below.

- A12** GNSS (GPS) - not used
- A13** Hiberband - not used
- A14** 2.4 GHz - Wi-Fi
- A15** SUB-GHz - LoRa
- A16** Ethernet
- A17** Power out
- A18** External battery - not used
- A19** Power in
- A20** LED status indicator
- A21** Pressure compensation vent
- C02** BGAN ethernet cable
- C03** BGAN power cable



1. Connect the lightning protector **A08** on the gateway connector **A15**.
2. Connect the lightning protector to a grounding point using a grounding cable (not provided)*.
3. Connect the LoRa antenna cable **A07** to the lightning protector **A08**.
4. Connect the other end of the LoRa antenna cable **A07** to field LoRa antenna **B01**.
5. Connect the Wi-Fi antenna **A06** to the Via gateway connector **A14**.
6. Connect the blue BGAN ethernet cable **C02** to Via gateway connector **A16**.
7. Connect the black BGAN power cable **C03** to Via gateway connector **A17**.

* Grounding the Hiberband Via gateway and BGAN terminal to an electrical earth connection is strongly advised, especially where the LoRa antenna and/or the Hiberband Via gateway and BGAN terminal are placed higher than surrounding objects. If an electrical earth connection isn't available, connect to a large conducting surface like a metal beam which is connected to earth. Consult a qualified electrician if in doubt.



STEP 03.1: QUICK INSTALLATION.

In order to quickly set up your Via gateway for testing purposes, we provide the following additional components:

- | 1. The Quick start LoRa antenna **A09**, which can be screwed directly onto the Via gateway connector **A15**.

- | 2. Ethernet cable **A10**, which allows you to connect the Via gateway to the internet directly without the BGAN terminal.

STEP 4: POWERING UP THE VIA GATEWAY.

WARNING

Powering the Via gateway without the Wi-Fi antenna **A06** and either Quick LoRa antenna **A09** or the Field LoRa antenna **B01** connected may damage the device.

Make sure to only use the power cable **A02** provided with the Via gateway.

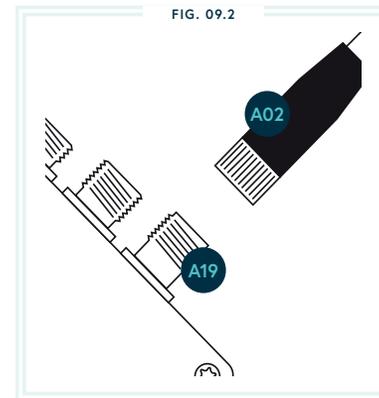
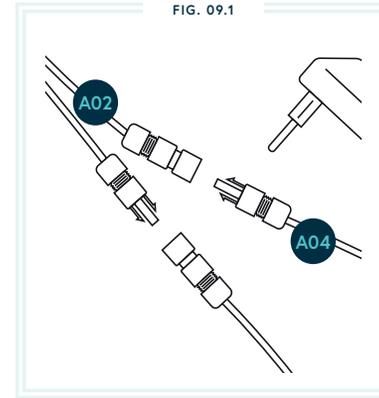
While the BGAN terminal is powered, keep a minimum of 1 meter distance from the front of the terminal. This device emits radio frequency energy. To avoid injury, do not place your head or other body parts in front of the satellite antenna when the system is powered. The BGAN terminal will switch on as soon as the Via gateway is powered. For more detailed safety instructions, please visit hiber.global/support/via.

You can power up the Via gateway in two different ways.
The box contains the accessories you need for both options.

Power option 01: indoor installation.

Use the wall mount adapter **A04**.

1. Connect the MC4 connectors of the power cable **A02** to the MC4 connectors of the wall mount adapter cable **A04** (fig. 09.1).
2. Connect the screw connector of the power cable **A02** to the Via gateway connector **A19** (fig. 09.2).
3. Plug the wall mount adapter **A04** into a power socket.



Power option 02: outdoor installation.

Use the AC/DC convertor **A03**:

1. Connect the MC4 connectors of the power cable **A02** to the MC4 connectors of the AC/DC convertor **A03** (fig. 10.1).
2. The bare wires coming out of the AC/DC convertor **A03** need to be properly connected to an AC power source (100-240V / 277V for North America). Consult a qualified electrician if in doubt.
3. Connect the screw connector of the power cable **A02** to the Via gateway connector **A19**. (fig. 10.2)

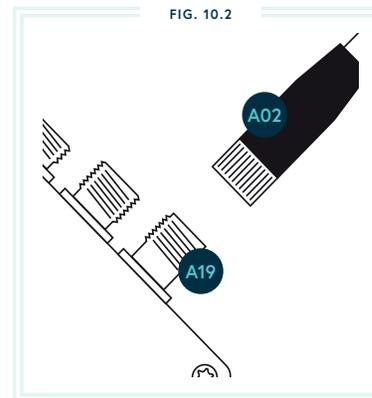
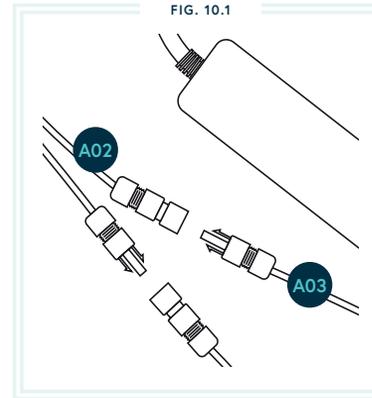
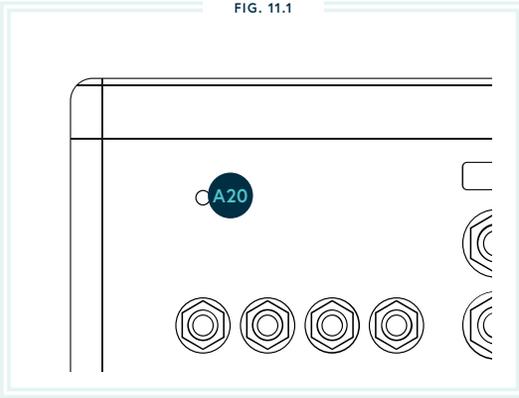
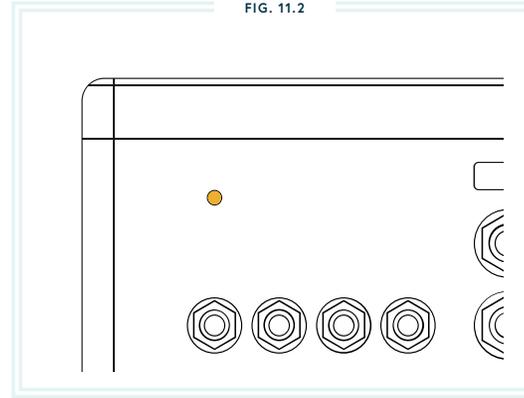


FIG. 11.1



Once powered, the LED status indicator **A20** turns white while the Via gateway is booting up. (fig. 11.1).

FIG. 11.2

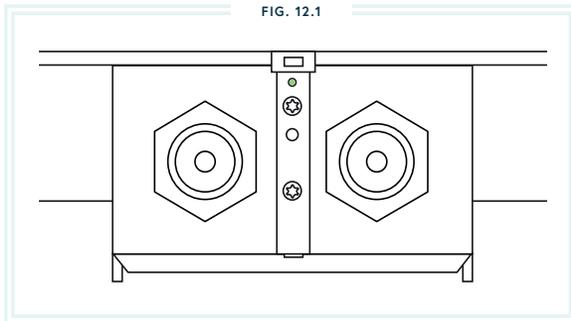


Once booted, the LED status indicator **A20** turns orange, as long as an internet connection is not established.

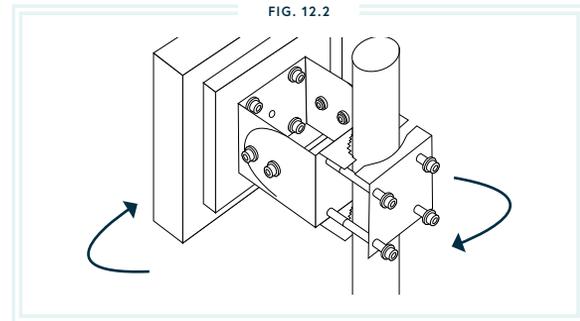
| Now proceed with Step 5: pointing the BGAN terminal.

STEP 05: POINTING THE BGAN TERMINAL.

Once the Via gateway is powered, it will in turn power the BGAN terminal. The BGAN terminal LED between the cable glands will initially flash green while booting up, and then flash yellow while the BGAN produces a beeping sound. This means you can proceed with the BGAN pointing process below.



1. Turn and tilt the BGAN terminal and use the pointing sound to obtain the highest possible signal strength. The more frequently the beep sounds, the higher the signal strength.

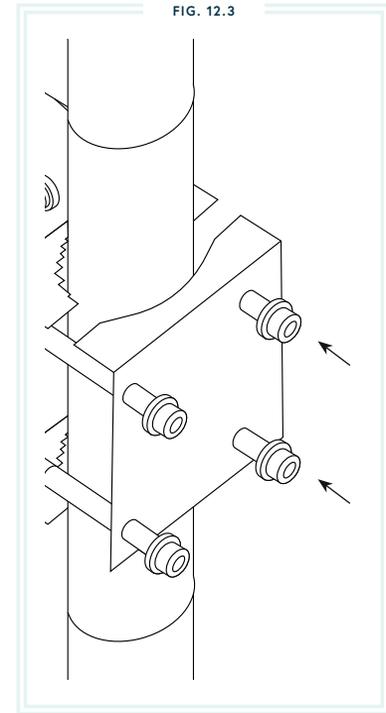


2. The moment the highest possible signal strength is acquired, the sound will turn into a continuous beep.

- I 3. Now tighten all the screws to keep the BGAN terminal in the pointed position. The LED will now flash green indicating that network verification is in progress.

- I 4. The BGAN terminal will automatically exit the pointing process once it has detected a stable signal, and the beeping will stop automatically. The LED will first turn to a steady green, and then switch off. This can take up to 5 minutes. **Please see Table 01: BGAN LED status indicator** for more information.

- I 5. When the BGAN satellite connection is established successfully the LED status indicator on the Hiberband Via gateway will turn blue, indicating the system is powered, operational, and connected to the internet.



STEP 6: CONNECTING TO THE HIBERBAND VIA GATEWAY WI-FI HOTSPOT.

Once operational, the Hiberband Via gateway creates a Wi-Fi hotspot. You can use this to connect to the Via gateway and access the Via configuration page. From the configuration page you can add additional LoRaWAN devices, see the status of the system and safely reboot or shut down the Via gateway*. Please note that:

To reduce the power consumption of the Via gateway, the Wi-Fi hotspot is not continuously available.

Once the Via gateway is powered and started up, the hotspot will remain available for 30 minutes.

After 30 minutes, the hotspot turns on and off during a 20 minute cycle. For the first 5 minutes it is active and remains visible, then for the next 15 minutes it is inactive and not visible. (fig. 13).

As long as you are connected to the Wi-Fi hotspot with your laptop or phone, it will remain active until you disconnect from it again.

* Do not shut down the Via gateway by disconnecting it from power, as this may damage the device.



To connect to the hotspot and access the Via configuration page, follow these steps:

1. Scan the QR code on the back page of this guide with your phone, computer or tablet to automatically connect to the Wi-Fi hotspot.

Alternatively, you can manually connect to the hotspot through the Wi-Fi settings on your device using the Wi-Fi SSID and password on the back page of this guide.

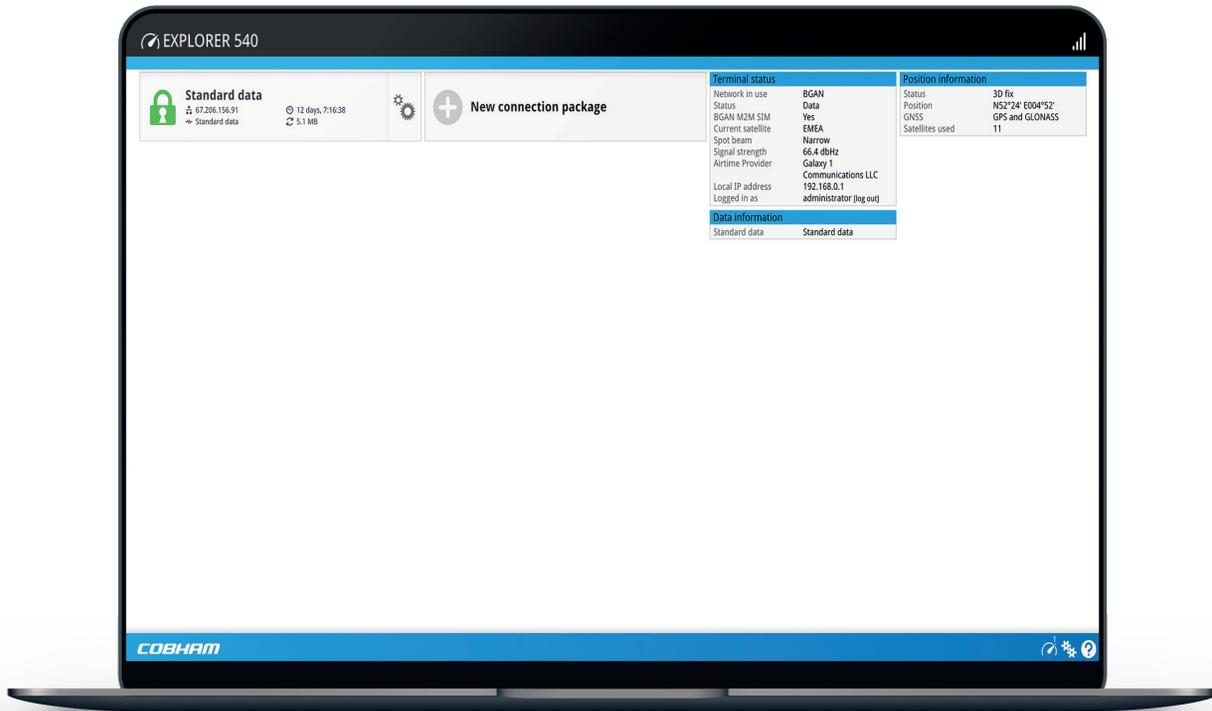
2. Visit **http://hiber.gateway** in an internet browser to access the Via gateway configuration page. If you are unable to access this url, visit **http://192.168.10.10/** instead.

STEP 7: VERIFYING IF THE SATELLITE CONNECTION IS ESTABLISHED.

- I 1. Once connected to the Hiberband Via gateway Wi-Fi hotspot, visit **<http://bgan.hiber.gateway>** in an internet browser to access the BGAN configuration page.

- I 2. Log in using the following credentials:
Username: user
Password: hiber

- I 3. Check the status and ensure the signal strength is 55dBHz or higher.
We recommend taking a screenshot of the configuration page so it can be referred to later upon the request of Hiber Support.



EXPLORER 540



Standard data

📶 67.206.156.91

↔ Standard data

🕒 12 days, 7:16:38

📀 5.1 MB



New connection package

Terminal status

Network in use	BGAN
Status	Data
BGAN M2M SIM	Yes
Current satellite	EMEA
Spot beam	Narrow
Signal strength	66.4 dbHz
Airtime Provider	Galaxy 1
Local IP address	Communications LLC
Logged in as	192.168.0.1
	administrator (log out)

Data information

Standard data	Standard data
---------------	---------------

Position information

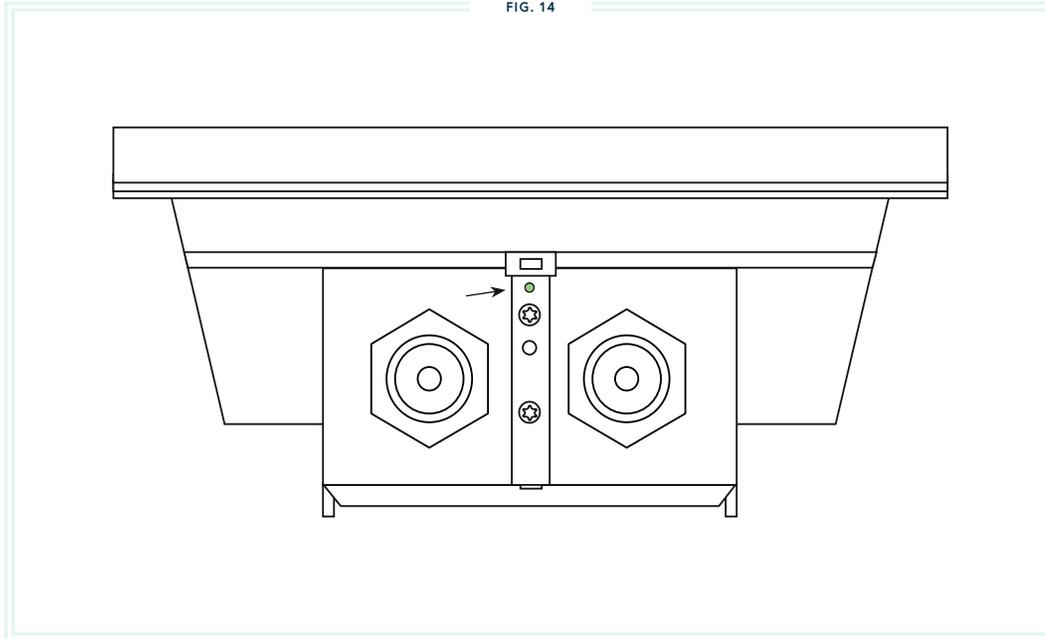
Status	3D fix
Position	N52°24' E004°52'
GNSS	GPS and GLONASS
Satellites used	11

COBHAM



TABLE 1: BGAN LED STATUS INDICATOR TABLE.

FIG. 14



**Off.**

Light indicator has been disabled or Power off.

**Flashing · Green.**

Verifying network connectivity.

**Flashing rapidly · Green.**

Starting up.

**Constant · Green.**

Ready.

**Constant · Red.**

Error: see the BGAN web interface (<http://bgan.hiber.gateway>) for more information..

**Flashing · Yellow.**

BGAN pointing.

**Flashing rapidly · Yellow.**

Closing down.

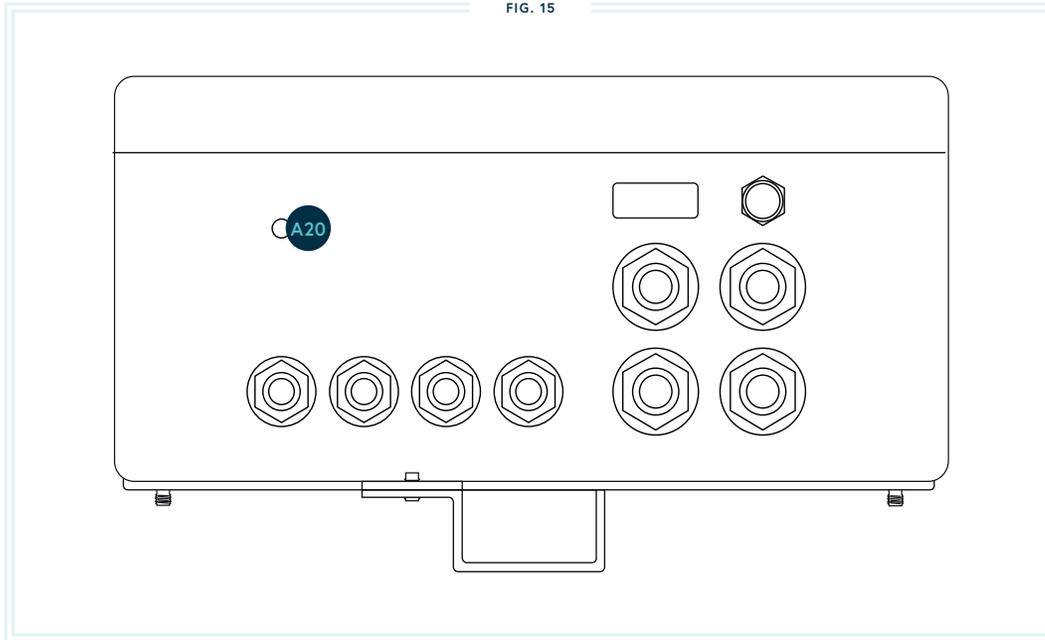
**Constant · Yellow.**

Warning: unable to establish connection. See the BGAN web interface (<http://bgan.hiber.gateway>) for more instructions.

**Flashing · Blue.**

Uploading software to the BGAN terminal.

TABLE 2: VIA GATEWAY LED STATUS INDICATOR TABLE.



**Cyan.**

The Via gateway is powered, operational, and connected to the internet.

**White.**

The Via gateway is powered and starting up.

**1 time blinking · White.**

The Via gateway is shutting down.

**2 times blinking · White.**

The Via gateway is rebooting.

**Orange.**

The gateway cannot connect to the internet.

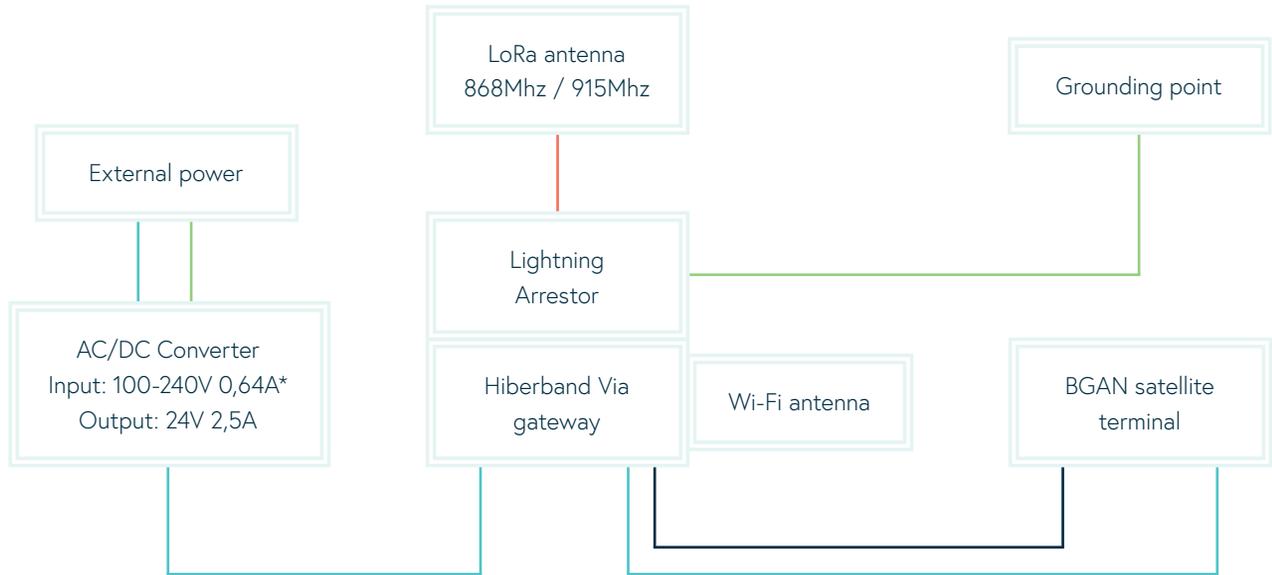
**1 time blinking · Orange.**

The Via gateway encountered an internal server error. Please log in to the Wi-Fi hotspot and check the system status.

**2 times blinking · Orange.**

The Via gateway encountered an error with the LoRaWAN stack. Please log in to the Wi-Fi hotspot and check the system status.

APPENDIX 01: INSTALLATION DIAGRAM.



Cabling:

- RF
- Power
- Ethernet
- Ground

* 277V - 0,30A - For North America only

Product information.

Here's everything you need to know about the product and technical specifications of your Hiberband Via gateway. Just in case.

For detailed product and technical specifications on the Cobham Explorer 540 satellite terminal, please visit **hiber.global/support/via**.

Support

If you need any help, you'll find most answers online or you can email us.

Documentation: **hiber.global/support/via**

Email: **support@hiber.global**

LoRaWAN

- 8-channel LoRa concentrator for outdoor use (868/915 MHz versions available)
- Integrated LoRaWAN network- and application server
- Supported LoRaWAN classes: A and C

Power

- 5W continuous consumption
- 12-24VDC, 10A max. Input
- 12-24VDC, 2.5A max. Output
- Output voltage is equal to input voltage

Environmental

- Operating temperature range: -20°C / +60°C
- Ingress protection level: IP67 with pressure relief valve

IP connectivity

- Industrial ethernet port for IP connection
- Optimised connectivity logic for third party satellite networks

Dimension incl. mounting bracket

- 330mm x 230mm x 140mm
- 4 kg

Maximum transmit power

<i>Supported radio networks</i>	<i>Operating frequency bands</i>	<i>Maximum transmitted radio-frequency power</i>
WLAN	ISM 2.4GHz	17.0 dBm
LoRaWAN EU868 (EU)	ISM 863-870MHz	27.5 dBm
LoRaWAN US915, AU915, AS923	ISM 902-928MHz	23.9 dBm

Adapter wiring

Power in

M12 female L-coded 4 or 5 pin adapter:

- Position 1: GND
- Position 2: GND
- Position 3: NC
- Position 4: VCC (power)
- Position 5 (FE): GND

Position 1 and 2 shorted:

- The short in the adapter acts as the power switch of the gateway

Battery

M12 female A-coded 4 pin adapter:

- Position 1: GND
- Position 2: GND
- Position 3: NC
- Position 4: VCC (power)

Position 3 and 4 shorted:

- The short in the adapter acts as the switch between internal and external battery
- This allows for a 12V internal battery, whilst connecting a 24V battery externally

Power out

M12 male A-coded 5 pin adapter:

- Position 1: NC
- Position 2: VCC (power)
- Position 3: Signal
- Position 4: GND
- Position 5: GND

Ethernet

M12 male D-coded 5 pin adapter:

- Position 1: TX+
- Position 2: RX+
- Position 3: TX-
- Position 4: RX-
- Position 5: Shield

Certification

Manufacturer

Hiber B.V.
Moermanskkade 600
1013 BC, Amsterdam
The Netherlands

EU Declaration of Conformity

The following statements only concern the Hiberband Via gateway EU868 version. Hereby, Hiber B.V. declares that the radio equipment Hiberband Via gateway EU868 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: hiber.global/support/via

FCC Notice / Canada

FCC ID: 2ASDVVIA1
IC: 24744-VIA1

The following statements only concern the Hiberband Via gateway US915 version.

FCC Part 15.21 Warning: Changes or modifications not expressly approved by the manufacturer, Hiber B.V., could void the user's authority to operate the equipment.

FCC Part 15.19(a) Statement: 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."



FCC/ISED RF Exposure Guidance Statement: In order to comply with FCC/ISED RF Exposure requirements, this device must be installed to provide at least 20 centimeters separation from the human body at all times. Afin de respecter les exigences de la FCC/ISED concernant l'exposition aux fréquences radio, ce système doit être installé pour assurer une séparation d'au moins 1m du corps humain à tout instant.

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'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Safety guide and warranty.

Read these simple guidelines in regards to the Hiberband Via gateway. Not following them may be dangerous or against local laws and regulations. For further information, read the user guide and visit hiber.global/support/via.

The Hiberband Via gateway makes use of the Cobham Explorer 540 satellite terminal. For detailed product information and safety documentation in regards to the Cobham Explorer 540, please visit hiber.global/support/via.

Protection from lightning strikes

Lightning is not good for anything electrical. So grounding the Hiberband Via gateway is highly recommended in cases where the LoRa antenna and/or the Hiberband Via gateway are placed higher than surrounding objects. Simply connect the lightning protection to an electrical earth connection. If this isn't available, connect the lightning protection to a large conducting surface like a metal beam connected to earth. Consult a qualified electrician if in doubt.

Safety distance

The Hiberband Via gateway emits a radio frequency. So to be safe, you need to keep a minimum of 1m away from the device when it is operating and always turn it off before carrying out any work. Also, never install it where it will be closer than 1m to people when operating.

Damage

If the device is damaged contact **support@hiber.global**. Only qualified personnel may repair this device.

Safety distance

Due to radio frequency exposure limits the gateway should be installed and operated with a minimum distance of 1m between the device and the body of the user or nearby persons.

Storage

Always store and use the device with any covers attached and store in the provided packaging.

Small children

Your device is not a toy. It may contain small parts. Keep them out of the reach of small children.

Care and maintenance

Handle your device with care. The following suggestions help you keep your device operational.

- Do not open the device other than as instructed in the user guide.
- Unauthorized modifications may damage the device and violate regulations governing radio devices.
- Do not drop, knock, or shake the device. Rough handling can break it.
- Do not clean the device with solvents, toxic chemicals or strong detergents as they may damage your device and void the warranty.
- Do not paint the device. Paint can prevent proper operation.

If the device needs maintenance, contact **support@hiber.global**. Only qualified personnel may perform maintenance on this device.

Recycle

Check the local regulations for proper disposal of electronic products.

The Directive on Waste Electrical and Electronic Equipment (WEEE), which entered into force as European law on 13th February 2003, resulted in a major change in the treatment of electrical equipment at end-of-life.

The purpose of this Directive is, as a first priority, the prevention of WEEE, and in addition, to promote the reuse, recycling and other forms of recovery of such wastes so as to reduce disposal. The crossed-out, wheeled-bin symbol on your product, battery, literature, or packaging reminds you that all electrical and electronic products and batteries must be taken to a separate collection at the end of their working life. Do not dispose of these products as unsorted municipal waste: take them for recycling. For info on your nearest recycling point, check with your local waste authority.

Warranty and service license agreement.

"By using the Hiberband Via gateway", you are agreeing to be bound by the terms of Hiber services terms and conditions, unless you return the Hiberband Via gateway as part of the return policy".

Hiber warranty, and Hiber services terms and conditions documents are available at the following internet address: <https://hiber.global/legal-documents/>





hiber.

Support

If you need any help, you'll find most answers online or you can email us.

Documentation: hiber.global/support/via

Email: support@hiber.global

Version: **VIAQSG0521V1003**

