



(Latest online doc version)



**Wirnet™ iBTS**  
**LoRaWAN® gateway for the Internet of Things**  
**Quick Start Guide**



**Thank you for choosing Kerlink.**  
**We are proud to be part of your project.**

For ecological reasons, this guide has been printed on recycled paper



KLK03591\_02  
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## 1 Need help?

The Wirnet™ iBTS is an outdoor industrial LoRa Gateway for IoT chain, specifically designed for harsh environment. Thanks to its carrier-grade conception, Wirnet™ iBTS has powerful processing capabilities, a secure design and advanced remote monitoring options. It has been designed to be easy to operate, even if you are non-telecom user. With Wanegy Management Plane, a Network Performance Monitoring and Diagnostics tool offer a wide set of technical and operational information to deliver stability, availability and reliability.

The Wirnet™ iBTS is based on LoRa® Semtech Reference Design V2 technology and is fully compatible and interoperable with existing LoRa LPWAN, offers GPS-free geolocalization features, and is LR-FHSS hardware ready. Wirnet™ iBTS architecture is completely modular and upgradable to offer multiple configurations to cover different countries and areas around the world.



Upon specific configuration, Wirnet™ iBTS can be used as a Helium-network compatible hotspot to mine HNT. To do so, it needs to be clearly mentioned once ordered as it uses a specific cryptographic private key, a dedicated software, and Helium miner. If you have any doubt, please check directly with your reseller to ensure it is Helium-network compatible. For Helium-network onboarding, please go through Helium application or use <https://helium-onboarding.kerlink.com/>

- To provide the most updated technical documentation, as well as considering and saving the environmental resources, Kerlink is providing preferably “Online documentation”. You can then find up to date documentation directly within our website: <https://www.kerlink.com/customer-support/>
- For its direct customers, Kerlink is also providing a Wiki access where it can be found a comprehensive set of documents and technical information. It can be accessed here: <http://wikikerlink.fr/>

- If you don't have yet your Wiki login/password, please request them to [support@kerlink.com](mailto:support@kerlink.com) (note that the “Product ID” of one of your products will be required).
- How to find the “Product ID”? Please look at the Wirnet™ iBTS sticker placed inside the enclosure:

**kerlink**  
communication is everything  
1, rue Jacqueline Auriol  
F-35235 Thorigné-Fouillard  
FRANCE  
[www.kerlink.fr](http://www.kerlink.fr)

Product ID:  
801BBg070001

11-56V === 3A  
IP66

**Wirnet iBTS**



The product must be installed on a non-flammable substrate (UL 94V0)  
Refer to the installation instructions before powering up

- For indirect Kerlink customers (meaning if you purchase the product through a distributor), please contact them directly to access document information and support. If really needed, Kerlink can provide those documents through mail request.
- On the Wiki, Kerlink is proposing a comprehensive set of documents and information for self-help:
  - Setup of Wirnet™ iBTS: Connection to the gateway, Firmware update, Packet Forwarder installation, Packet Forwarder configuration.
  - System Management: Connection, login and credentials, KerOS REST API, ...
  - Network Management: Backhaul configuration, Firewall, IPsec / OpenVPN.
  - LoRa Features, KerOS customization, Support and resources (FAQ, Troubleshoot the gateway ...)
- Application Notes for questions related to generic engineering rules:
  - AN-KLK03355 - Improving radio coexistence performance of LoRaWAN gateways
  - AN-KLK03356 - LoRaWAN gateways coverage optimization
  - AN-KLK03357 - LoRaWAN gateways installation recommendations
  - AN-KLK03358 - LoRaWAN gateways lightning protection
- For additional information or if you need any assistance to use the product, please contact your reseller. You can also find more information here: <https://www.kerlink.com/customer-support/>

## 2 Manufacturer

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[www.kerlink.com](http://www.kerlink.com)

## 3 Package Contents

Wirnet™ iBTS architecture is completely modular and upgradable to offer multiple configurations to cover different countries and areas around the world. Thanks to the modularity the operator can choose:

- The backhaul network: Ethernet or GPRS/EDGE/HSPA/CDMA/LTE.
- The unlicensed band (ISM) where to operate the LoRa LPWAN.
- The number of channels to operate the LoRa LPWAN: 8 to 64.
- The antenna interface: single (omnidirectional) or dual (space diversity or dual polarization)


Three different modules can be integrated into the Wirnet™ iBTS:

- CPU Module (mandatory) which includes Power - CPU. - Memories. - GNSS receiver (GPS).
- WAN Module (optional) which provides the 4G modem backhaul (single or dual) and Backup battery.
- LoRa modules (from one to four), which can be prepared in 3 versions:
  - 868 MHz: 863-873 MHz band.
  - 915 MHz: 902-928 MHz band.
  - 923 MHz: 915-928 MHz band.

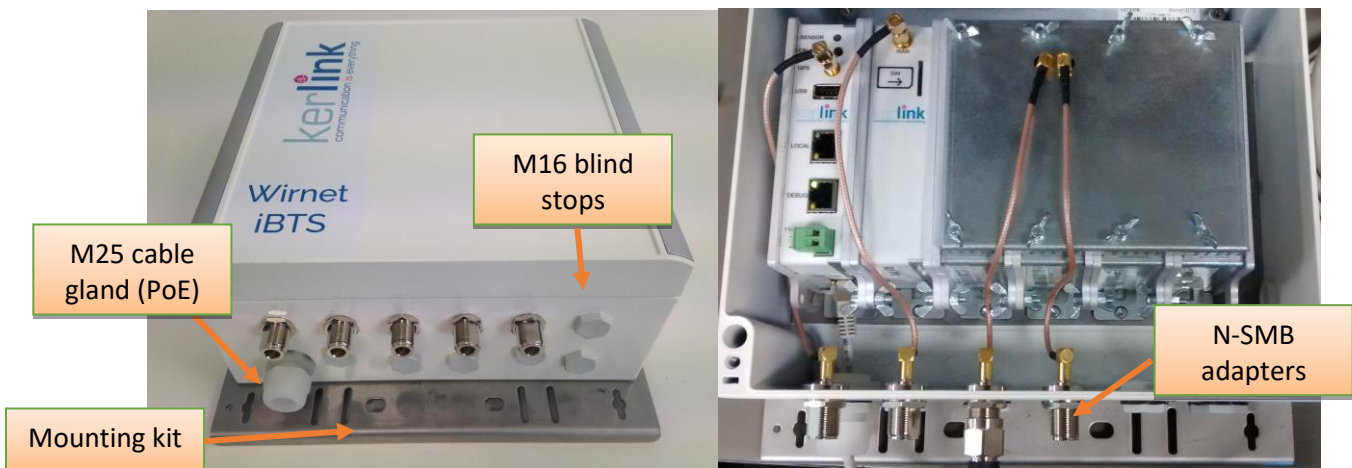
The different versions and options are listed in the following table:

Gateway designation	Gateway Reference	Backhaul	LoRaWAN channels	GNSS receiver	Regional Parameters	Space diversity	Geo location
<b>Wirnet iBTS 868</b>	PDTIOT-MSS01	Eth	16	Yes	EU863-870 IN865-867 RU864-870	Option	Yes
	PDTIOT-MSS02	Eth, 4G	16				
	PDTIOT-MSS03	Eth	48				
	PDTIOT-MSS04	Eth, 4G	48				
<b>Wirnet iBTS 915</b>	PDTIOT-MSS05	Eth	64	Yes	AS923 KR920-923 AU915-928 US902-928	Option	Yes
	PDTIOT-MSS06	Eth, 4G	64				
<b>Wirnet iBTS 923</b>	PDTIOT-MSS07	Eth	64	Yes	AS923 KR920-923 AU915-928	Option	Yes
	PDTIOT-MSS08	Eth, 4G	64				
	PDTIOT-MSS11	Eth	48				
	PDTIOT-MSS12	Eth, 4G	48				
	PDTIOT-MSS13	Eth	16				
	PDTIOT-MSS14	Eth, 4G	16				
	PDTIOT-MSS16	Eth, 4G	16				
PDTIOT-MCS17	Eth, 4G	48					

As part of the Wirnet™ iBTS modularity, many accessories can be provided for configuration purpose: LoRa antennas, GPS antennas, Cellular antennas, RF cavity filters, PoE injectors, Surge protections.





The Wirnet™ iBTS should only be used with accessories or spare parts supplied by your reseller




## 4 Safety


- Please, read these instructions carefully and look at the equipment to become familiar with the device before trying to install, operate, or maintain it.
- The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.


	<ul style="list-style-type: none"> <li>• Refers to a critical situation.</li> <li>• In case of non-compliance, it may result in property damage</li> </ul>
	<p>Refers to useful information during manipulations.</p>


## 5 Installation of Wirnet™ iBTS

### 5.1 General safety warnings

	<ul style="list-style-type: none"> <li>• Only use the Wirnet™ iBTS for its intended use "Normal conditions of use".</li> <li>• Maintenance and repair must be carried out by qualified personnel authorized by the manufacturer.</li> <li>• The Wirnet™ iBTS should only be used with accessories or spare parts supplied by your reseller.</li> </ul>
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	<p><b>CAUTION: hot surface – Do not touch</b> Internal parts (LoRa module especially) may reach temperature surfaces above 70°C when ambient temperature is close to +60°C. In nominal operation, these parts are not accessible but if enclosure is opened, beware to not touch those parts!</p>
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	<p>Operating conditions:</p> <ul style="list-style-type: none"> <li>• Operating temperature range: -40°C to +60°C</li> <li>• Humidity: 95% non-condensing</li> <li>• Ingress protection: IP66</li> <li>• Impact resistance: IK08</li> <li>• Flammability rating: UL94-V0</li> <li>• Altitude: &lt; 2000m</li> <li>• Pollution Degree: PD2</li> </ul>
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	<p>Power consumption (max):</p> <ul style="list-style-type: none"> <li>• CPU module (20% load): 1.8W</li> <li>• WAN module (HSPA, 25% Tx, 75% Rx): 1.7W</li> <li>• LoRa LOC module (Rx mode): 6.5W</li> </ul> <p>Total Wirnet iBTS (1 LoRa LOC): 237Wh Total Wirnet iBTS (2 LoRa LOC): 392Wh Total Wirnet iBTS (3 LoRa LOC): 547Wh Total Wirnet iBTS (4 LoRa LOC): 702Wh</p>
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### 5.2 Power supply

#### 5.2.1 POE supply

The Wirnet™ iBTS gateway is supplied by a PoE injector through an Ethernet cable.

One Midspan PoE injector among the following list could be provided with each Wirnet™ iBTS:


- Indoor or Outdoor AC/DC Midspan PoE injector 60W
- Indoor or Outdoor DC/DC Midspan PoE injector 60W


M16 blind stops


AC/DC vs. DC/DC choice is application dependent.

In case only 110/220VAC is available, AC/DC solution is preferred.

In case additional DC backup (type 48V) is available, DC/DC solution may be envisaged.

	<p>Beware of the operating ambient temperature of the Midspan PoE injectors. Output power derating over +40°C has to be carefully considered to insure proper supply of the Wirnet™ iBTS. If the ambient temperature range cannot be guaranteed below +40°C, the Midspan PoE injector may have to be re-dimensioned. A 60W PoE injector could be then recommended instead of a 30W PoE injector.</p>
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 The power supply of the Wirnet™ iBTS must be a limited power source. All the PoE injectors listed below must then be considered as limited power sources

 Some POE solutions may not be compatible with the Wirnet™ iBTS. This is particularly true for specific DC application where the Wirnet™ iBTS is in power supply colocation with other equipments. In such cases, some equipment may have connection between earthing system and the power supply connection (either “+” or “-” wire) dependent if the application is in +48VDC or -48VDC. As the electrical ground of the Wirnet™ iBTS is directly connected to the earthing system of the installation, dysfunction may occur without POE insulation.

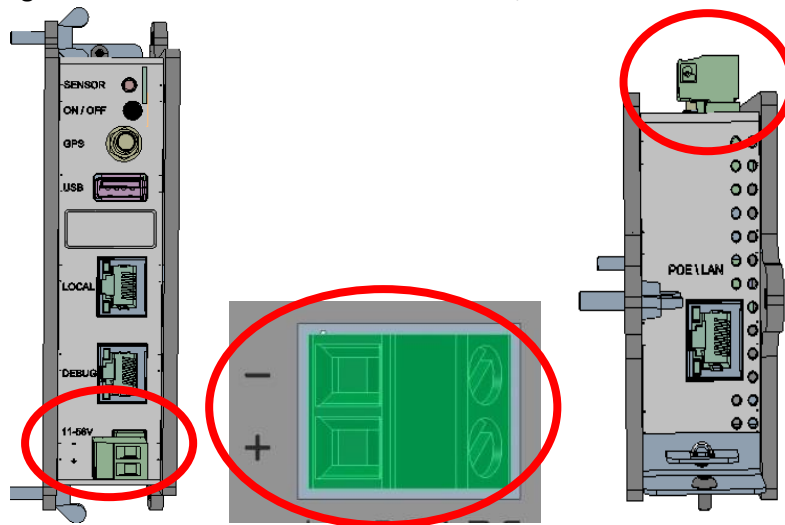
### 5.2.2 Auxiliary power supply

The Wirnet™ iBTS can be also supplied with an auxiliary DC power supply as a solar panel for instance. The input voltage range is 11 to 56VDC. A 24V DC solar system is then recommended for optimized performance.

A two-wire cable is required to interconnect the auxiliary power supply connector.

The recommended cable section is 1.5 sq. mm.

The auxiliary power supply connector is a Euroblock plug, which is located on the front side of the CPU module. The polarity of the power signals are indicated besides the connector, as shown below:



First, the auxiliary power supply cable must be introduced into the enclosure through a cable gland. The operator needs to determine which cable gland can be used for this operation:

- M25 cable gland can be used for that purpose if the Ethernet cable is no longer required (LTE backhaul only). The M25 cable gland allows external cable diameter from 5mm to 8 mm.
- If the Ethernet cable is required, then a M16 cable gland must be used. One M16 blind stops must be removed and replaced by the M16 cable gland.

The M16 cable glands allows external cable diameter from 4mm to 8 mm.

After insertion through the cable gland, the 2-wire cable can be screwed to the dedicated Euroblock plug as described above, according to the defined polarity.

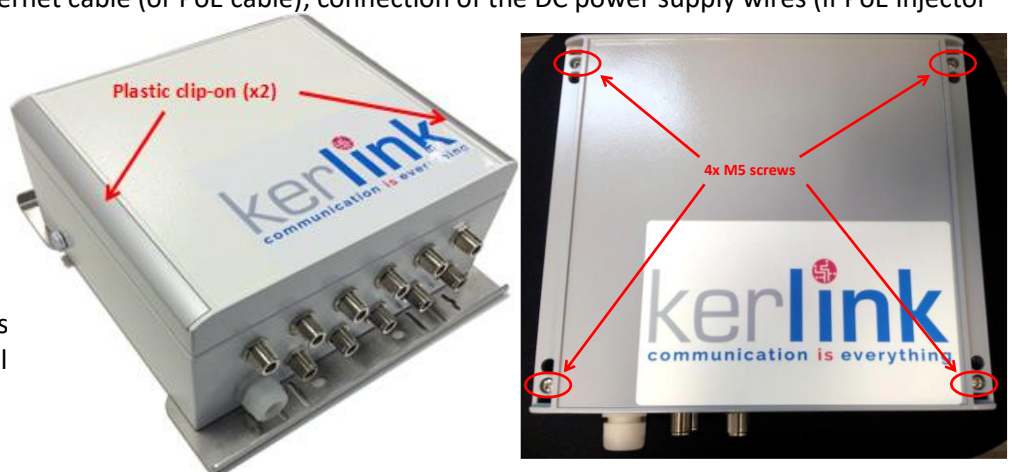
### 5.3 Opening of the enclosure

Before proceeding to the installation of the Wirnet™ iBTS, opening of the enclosure is required for insertion of the USIM card, connection of the Ethernet cable (or PoE cable), connection of the DC power supply wires (if PoE injector not used).

The lid tightens to the frame with 4 x M5 screws, hidden by two plastic clip-on design covers. First, remove the two plastic clips. This can be done manually, without any particular tool.

The 4 x M5 screws are now access. Unlock the screw with a big flat-bl screw driver.

Remove the lid.



## 5.4 Setting backhaul connection

### 5.4.1 USIM card

The USIM card is mandatory to establish the LTE/3G/GPRS communications.

The USIM card to be used with the Wirnet™ iBTS shall be a 2FF format. Kerlink recommends the usage of a M2M UICC compliant with 3GPP TS 102.671. It offers then a better temperature operating range, improved data retention and increased number of UPDATE commands.

Before inserting the USIM card, pay attention that the Wirnet™ iBTS is unpowered by checking that all LEDs of the CPU module are OFF.

USIM card insertion is based on a push-push mechanism.

Then, to insert a USIM card in the WAN module, follow the procedure:

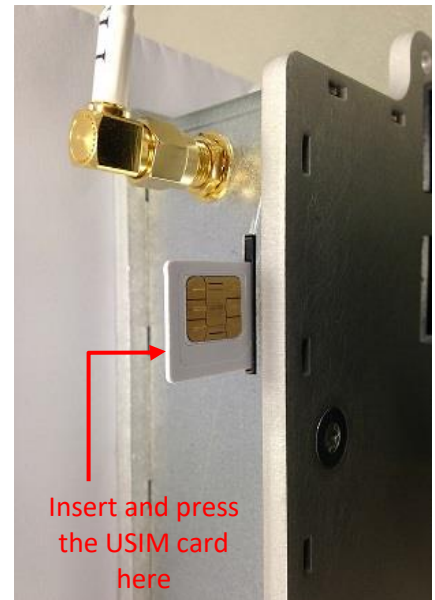
- Open the enclosure
- Insert carefully the USIM card in the WAN module respecting the USIM orientation drawn besides the connector
- Push the USIM card and released pressure until a “click” can be heard.

In case of replacement of the USIM card, the power supply must be firstly switched off by disconnecting Ethernet wires or disconnecting the POE injector. For few seconds, the Wirnet™ iBTS is still powered-on due to the internal backup battery. Wait and check the LEDs are switched off before extracting the USIM card.

Simply push the USIM card to extract it from the WAN module.


After inserting the new USIM card as described above, the Wirnet™ iBTS can be re-powered on again.

In case of change of mobile operator, APN and login/password must be updated. This can be done through USB update or through the local maintenance Web interface.



### 5.4.2 Ethernet connection

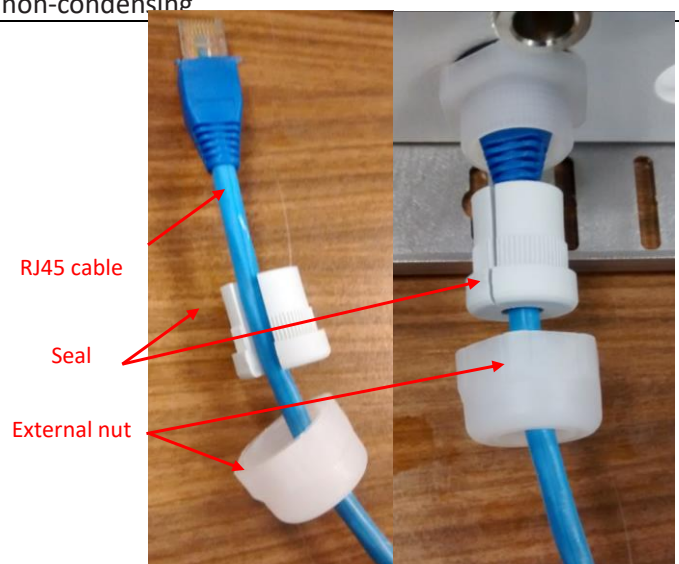
The Wirnet™ iBTS is supplied by a PoE injector through an Ethernet cable.

 <p>Information</p>	<p>The Ethernet cable is not provided and must consist of two RJ45 T 568A (or 568B) plugs on each side.</p> <p>KERLINK recommends using a cable with the following characteristics:</p> <ul style="list-style-type: none"><li>• Category: 6A</li><li>• Shielding: STP (U/FTP) or SSTP (S/FTP)</li><li>• Section conductors: AWG26</li><li>• External jacket: LSZH or PUR</li><li>• Maximum length: 100 meters</li><li>• Cable gland 6.6-8.6mm.</li></ul> <p>Operating temperature range: -40°C to +60°C</p> <p>Altitude max. &lt; 2000m / hygrometry 95% non-condensing</p>
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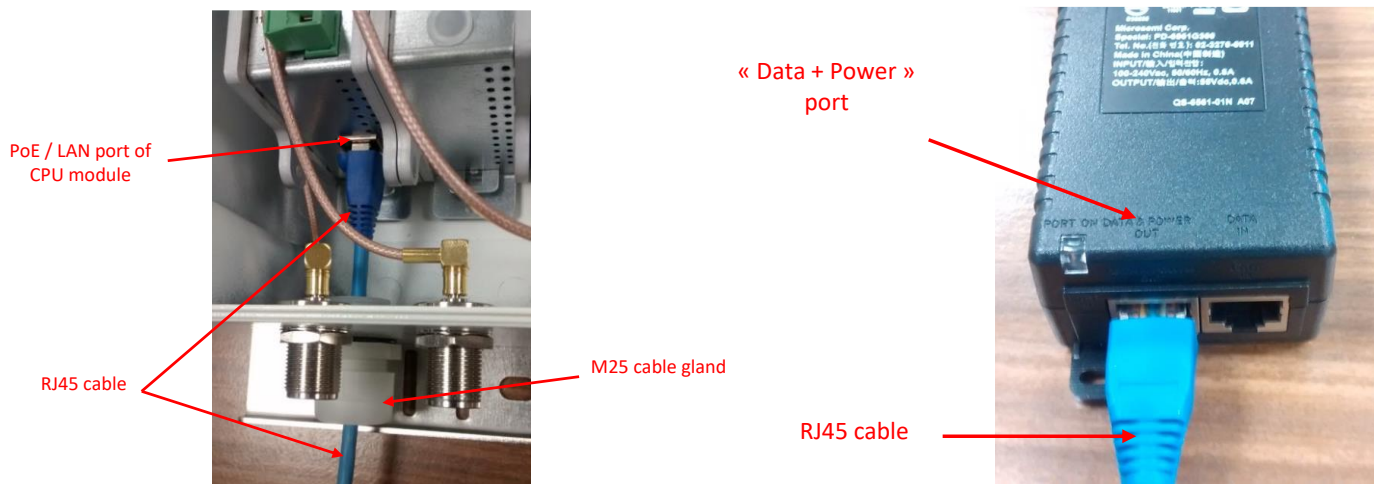
On Wirnet™ iBTS side, the Ethernet RJ45 connector must be firstly inserted through the M25 cable gland.

To introduce the RJ45 cable into the cable gland, follow the procedure below:

- Unscrew the external nut
- Remove the seal
- Introduce the RJ45 cable into the external nut
- Place the seal around the RJ45 cable
- Introduce the RJ45 cable into the cable gland body
- Connect the RJ45 connector in to the PoE/LAN port of the CPU module
- Replace the seal in the cable gland body
- Screw the external nut



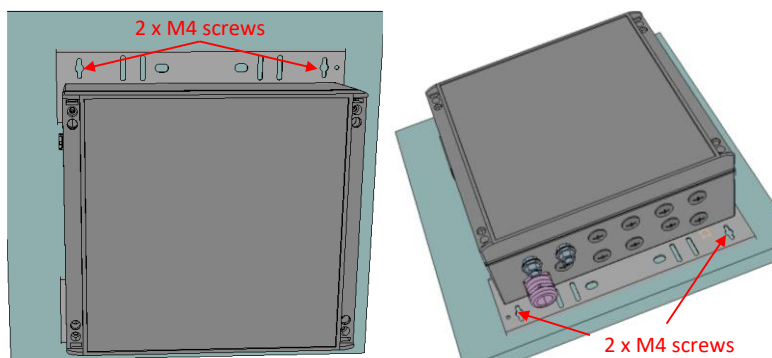
The cable gland allows external cable diameter (cable and RJ45 connector) from 5mm to 8 mm. An example of RJ45 connector inserted to the PoE/LAN port of the CPU module is shown below. On the other side of the Ethernet cable, the RJ45 connector must be inserted into the RJ45 “Data + Power” port of the POE injector. This POE injector shall be connected to 230VAC mains supply.



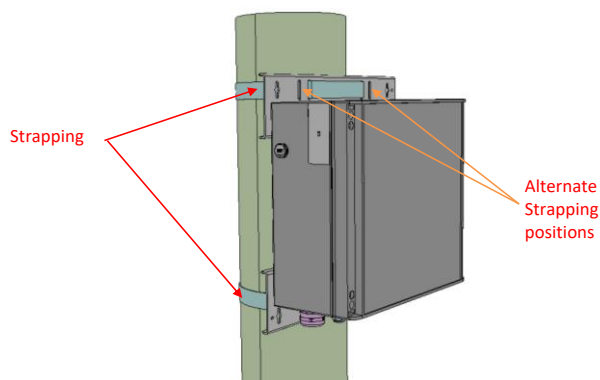
## 5.5 Mounting of the enclosure

The mounting kit delivered with the Wirnet™ iBTS allows fixing the product in different ways: Wall mount, Pole mount by metallic strapping, Pole mount by U-bolt.

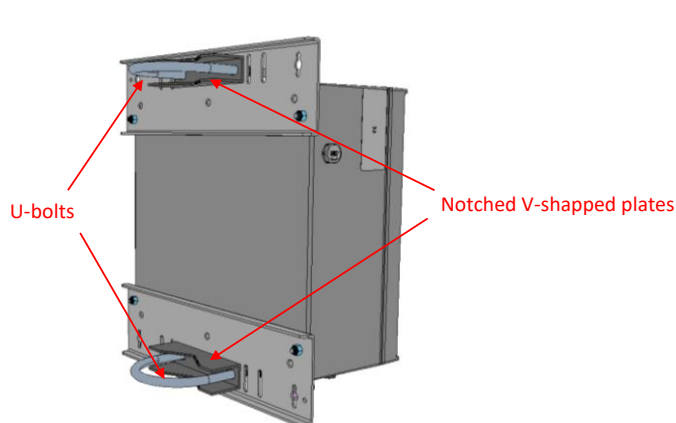
	When installing the product, the ground connection must always be made first.
	The Wirnet™ iBTS enclosure can be mounted on a pole by strapping, any concrete pedestal, concrete wall or any non-flammable surface (UL94-V0).
	The pole or mast should be also connected to ground.



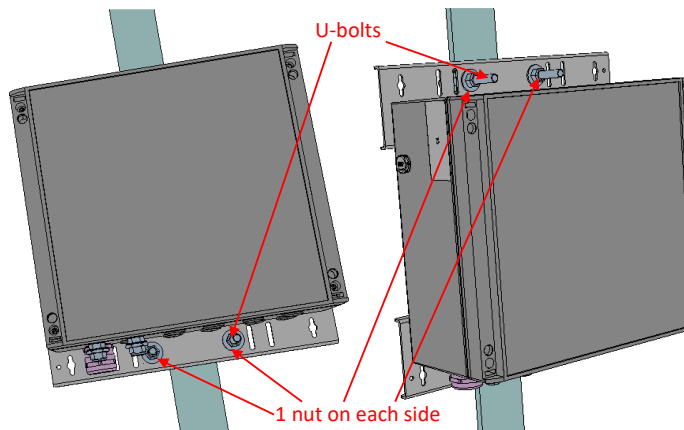
Wall mounting with 4 x M4 screws. M4 screws are not delivered with the mounting kit



Metallic strapping mounting with maximum acceptable width of 25mm



The Wirnet™ iBTS is delivered with two notched V-shaped plates and two U-bolts to be mounted on a pole with a maximum diameter of 60mm




To screw the U-bolts, it is recommended to use the four nuts provided in the mounting kit.

## 5.6 Earthing

Several earthing cables, wires, tapes or ring tongue terminals are required to connect the installation and the materials to earth for lightning immunity and electrical security:

- Earthing of the Wirnet™ iBTS mounting kit
- Earthing of the antennas
- Earthing of the RF coaxial surge protection
- Earthing of the Ethernet surge protection
- Earthing of the outdoor PoE injector

A M8 ring tongue terminal is provided for earthing of the Wirnet™ iBTS mounting kit.

Earthing is completed through the holes dedicated to the M8 U Bolt used for pole mount. The earthing symbol  is placed close to dedicated holes.

Two different configurations are then possible, depending on the usage of the U bolt:

1. The M8 U bolt is used (pole mount by U-bolt configuration):

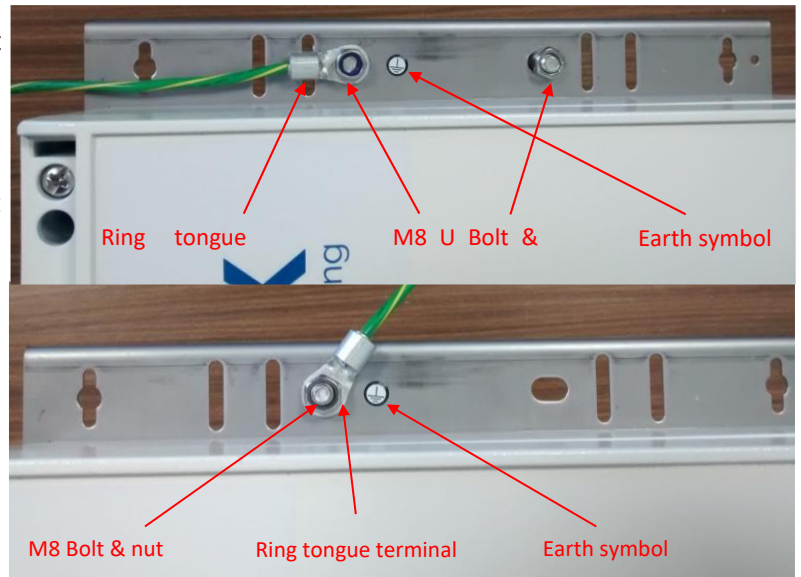
The U-bolt and the M8 nut are used to connect the ring tongue terminal

2. The M8 U bolt is not used (wall mount configuration or metallic strapping configuration):

The M8 bolt and nut is used to connect the ring tongue terminal.

Crimp the ring tongue terminal to earthing cable with the crimping tool

Connect the other side of the earthing cable to the earthing system or lightning protection system of the of the pole, mast, ... of the installation.



## 5.7 Mounting of the antennas



The antenna should be also connected to the ground.

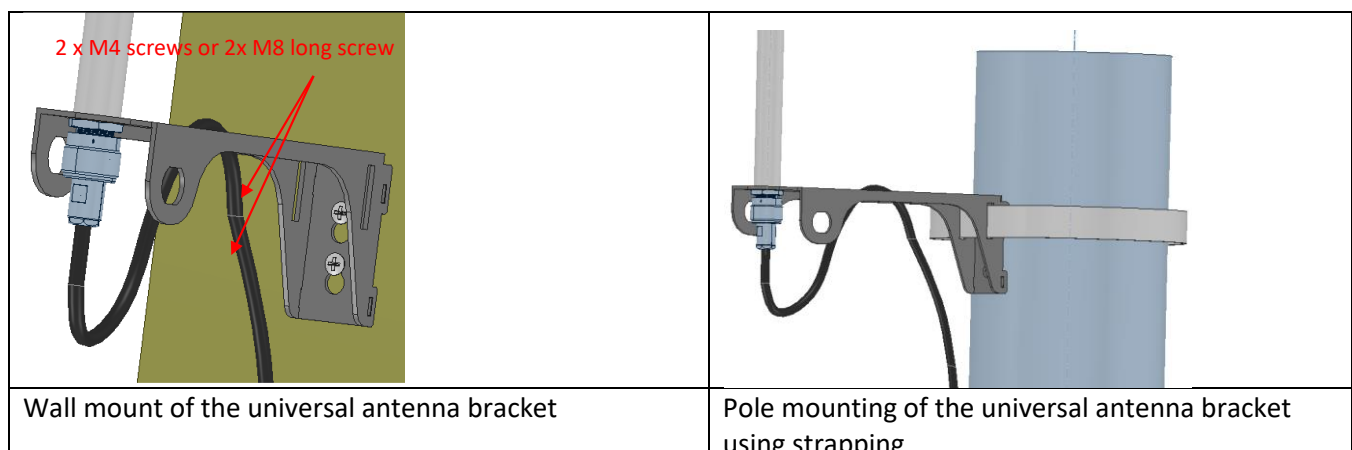
### 5.7.1 3dBi LoRa antennas

A universal antenna bracket is used with the 3dBi Lora antennas.

The universal antenna bracket has 3 holes dedicated to the LoRa antenna N connector. The bracket can be then oriented in 3 different positions without compromising the antenna position.

The universal antenna bracket can be mounted:

- On a wall, using two M4 screws separated by 19mm.
- On a pole: using metallic strapping through the two 5mm x 25mm slots.



Wall mount of the universal antenna bracket

Pole mounting of the universal antenna bracket using strapping





The M4 screws, the metallic strapping are not provided by KERLINK

Once the universal antenna bracket is installed, then the LoRa antenna can be mounted on the bracket. The LoRa antenna is provided with a N female connector, a washer and a M19 nut.

Follow the following procedure:

- Unscrew the M19 nut
- Remove the washer
- Introduce the N connector into the hole of the universal antenna bracket
- Place the washer
- Screw the M19 nut



To optimize the colocation between the internal LTE antenna and the external LoRa antenna, a distance of 20 cm is required between both radiated parts.

### 5.7.2 6dBi LoRa antennas

6dBi omnidirectional LoRa antenna are provided with their own mounting kit based on two U-bolts for pole mount. These antennas cannot be installed on the universal antenna bracket.



The pole diameter shall be 48mm max.

Mount the antenna on the pole using the U-bolts as follows:



Mount the U bolts on the antenna



Mount the antenna and U-bolts on the pole



Remove the cap on the N connector of the antenna



- Use a M6 wrench to screw the nuts of the U bolt.
- The M6 nuts shall be screwed at their maximum to ensure safe tightening.
- The M6 bolts can be used for ground connection

### 5.7.3 GNSS and LTE antennas

Dome antenna brackets are provided with the LTE antennas and GNSS dome antennas.

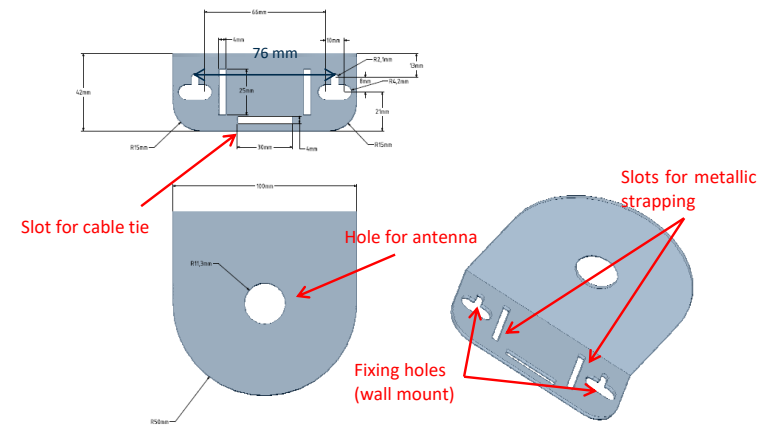
The GNSS antenna requires an open sky view to be able to receive a maximum number of satellites. This determines the PPS clock accuracy and finally the TDOA / geolocalization accuracy.


Both LTE and GNSS antennas are provided with a 5m coaxial cable to optimize the placement and installation.

The dome antenna bracket has a single hole dedicated to the LTE and / or GNSS M22 screw.

The dome antenna bracket can be mounted:

- On a wall: use in this case 2 x M4 screws separated by 76mm.
- On a pole: use metallic strapping through the two 4mm x 25mm slots.
- On a pole: alternate option is to use the “notched V shaped plate and a U-bolt”. The maximum diameter of the pole is 60mm.
- Introduce the N connector(s) into the hole of the bracket
- Pass all the coaxial cable length through the hole until the antenna is in contact with the bracket
- Unscrew the M22 nut
- Introduce the antenna M22 screw into the hole
- Beware the position of the gasket to insure waterproof installation. There shall be no aperture between the antenna casing and the gasket.
- Screw the M22 nut



 Information	The M4 screws, the metallic strapping are not provided by KERLINK
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### 5.8 Mounting of a cavity filter

Whenever a cavity filter is recommended, screw it directly onto the antenna as follows:




Remove caps on both N connectors



Screw the cavity filter onto the antenna through the N connector



Screw the coaxial cable onto the N connector of the cavity filter

 Information	Use a M19 wrench to screw the cavity filter and the coaxial cable.
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## 5.9 Setting antenna connection



Before setting all connections, ensure that the power supply is not connected to the mains supply.

RF antennas (GNSS, LTE and LoRa) are connected to the Wirnet™ iBTS through the N connectors on the bottom side of the enclosure.

In its default configuration, the standard casing features only 3 N-SMB adapters used as RF interfaces for the antennas:

- 1 for GNSS antenna (GPS)
- 1 for WAN antenna (GSM/HSDPA/LTE)
- 1 for LoRa antenna.

The N connectors are connected to the modules (CPU, WAN and Lora) through SMB-SMB or SMB-SMA coaxial cables.

The coaxial cables must be carefully checked to make sure the right RF interface of each module is connected to the right N connector and therefore to the right antenna.

If antenna diversity is required then the installer has to mount an additional N-SMB adapter on the bottom side of the enclosure. The M16 blind stop is available for that purpose.

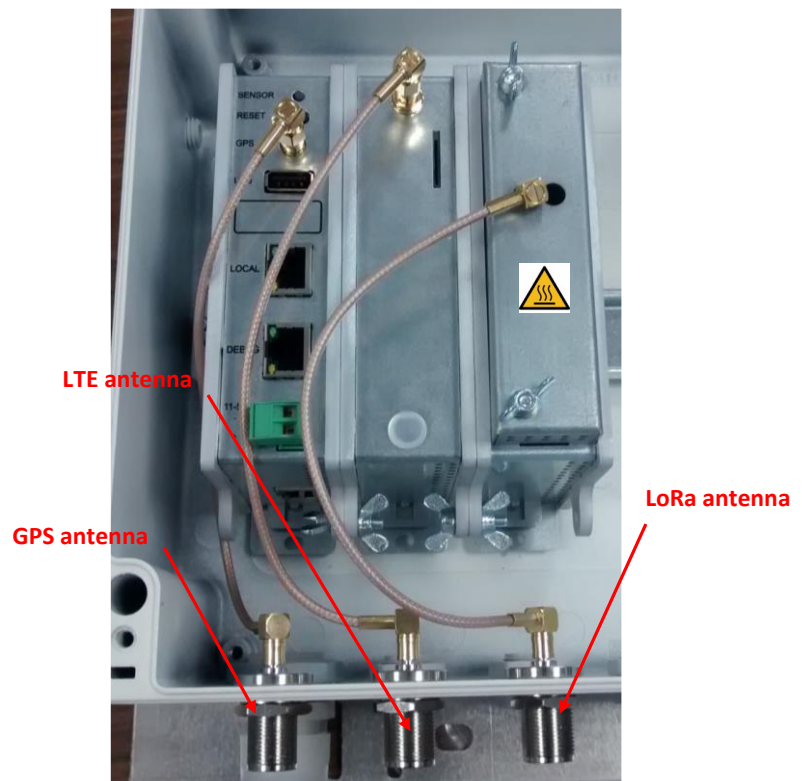
Several LoRa antennas can be used with the Wirnet™ iBTS.

Once the antennas are mounted, a RF coaxial cable shall be used to connect the antenna to the Wirnet™ iBTS. The RF coaxial cable delivered by default is only 1m length. This is suitable for many installations, but extension coaxial cables can be used when the distance between the LoRa antenna and the Wirnet™ iBTS is greater than 1 meter.

The RF coaxial cables have two N male connectors on each side. One side is screwed on the antenna N female connector and the other side is screwed on the N female connector on the bottom side of the Wirnet™ iBTS

To improve the durability of the RF connections against environmental aggression (moisture, pollution ...), KERLINK recommends to protect the connectors with an insulating tape like the reference 130C from 3M.

To tighten the coaxial cable of the Wirnet™ iBTS, the installer can use cable clamps inserted in the dedicated slots of the mounting kit.



## 5.10 Power ON

Once the RF antenna(s) and the Ethernet cable are connected and the USIM card is inserted, the Wirnet™ iBTS can be powered ON. To POWER ON the Wirnet™ iBTS, connect the PoE injector onto the 230VAC mains supply.



Ensure all connections are set before powering up the gateway

To ensure the Wirnet™ iBTS is started up, check the behavior of the LED indicators on the CPU module:

Connector	LED	Description
LOCAL	Green	Ethernet data activity
LOCAL	Orange	Ethernet Link
PoE/LAN	Green	Ethernet data activity
PoE/LAN	Orange	Ethernet Link
DEBUG	Green	Power status
DEBUG	Orange	Software status/ activity

When the Wirnet™ iBTS is powered ON then, all the LED are switched ON during seven seconds.

Then the DEBUG green LED must be ON to indicate the power supplies are OK.

The DEBUG orange LED is blinking very fast during two seconds at the end of the boot.

Once the boot is completed and the Wirnet™ iBTS is in nominal configuration, then the DEBUG orange LED is blinking every 5 seconds.

## 5.11 First connection

The Wirnet productline embeds a web interface to allow to easily manage the gateways:

- Trigger software upgrade/update,
- Configure the backhaul connectivity,
- Trigger actions on the gateway: Turn-off, reboot, factory reset ...

The generic syntax to access to this web interface is: [http://klk-<type\\_GW>-<serial>/](http://klk-<type_GW>-<serial>/)

For the Wirnet™ iBTS: <type\_GW> = <lpbs> and <serial> is the last 6 digits of CPU module ID.

Note that if your computer is on the same local network, you can also use directly the IP address of your gateway in a browser to connect to the Web interface.

The default credentials are available on the wiki.



**For security reasons, it is strongly recommended to change the default passwords.**

## 6 Declarations of Conformity



Radio equipment shall be put into service and used only when granted a certificate, type approval, etc. according to the national regulation. They shall be properly installed, maintained and used for its intended purpose. Economic operators shall ensure effective and efficient use of the radio spectrum, avoidance of harmful interference, electromagnetic disturbances or to public health. Penalties may lay down applicable to infringements by economic operators of the provisions of national law adopted and they shall take all measures necessary to ensure that they are enforced. Such rules may include criminal penalties for serious infringements.

### 6.1 Wirnet™ iBTS 868

#### Simplified EU Declaration of Conformity

Hereby, Kerlink, declares that the radio equipment type Wirnet™ iBTS 868 is in compliance with Directive 2014/53/EU.

The full text of the EU Declaration of Conformity is available at the following internet address : <https://www.kerlink.com/customer-support/support-wirnet-ibts/>



In Europe, the Wirnet™ iBTS 868 must comply with the ERC 70-03 requirements regarding duty cycle and maximum EIRP. They are summarized in the following table

ERC 70-03	Frequency (MHz)	Power	Duty Cycle
h1.4	865-868	14dBm ERP	1%
h1.5	868-868,6	14dBm ERP	1%
h1.7	869,4-869,65	27dBm ERP	10%

#### UKCA Declaration of Conformity

Hereby Kerlink declares that your radio equipment Wirnet™ iStation 868 is in conformity with the following relevant legislation of United Kingdom:

UK SI 2017/1206 - Radio Equipment Regulations 2017

UK SI 2012/3032 - Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 (RoHS2)





The power supply of the Wirnet™ iBTS 868 must be a limited source of power. Note that: If the LoRa antenna is changed, the output power must be adjusted to take into account the gain of the antenna in order to not overrule the ERC 70-03 recommendation.

Some countries in Europe may have specific frequency ranges, EIRP and duty cycles regulations. Check the local regulations before installing and commissioning the Wirnet™ iBTS 868.

For other countries, outside Europe, check the frequency range, the maximum EIRP and duty cycle allowed.

## 6.2 Wirnet™ iBTS 915

The Wirnet™ iBTS 915 is compliant to both FCC and IC regulations.  
The associated FCC and IC identifiers of the Wirnet™ iBTS915 915MHz are:

Model: Wirnet™ iBTS 915  
FCC ID: 2AFYS-KLK915IBTS  
IC: 20637-KLK915IBTS

Model: MC7355  
Contains FCC ID: N7NMC7355  
Contient IC: 2417C-MC7355



The power supply of the Wirnet™ iBTS 915 must be a limited source of power. Note that: Kerlink is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user’s authority to operate the equipment.

This device complies with Industry Canada’s license-exempt RSSs. 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.

Some conditions have to be respected to maintain the FCC and IC compliance of the de- vices in the USA and Canada. Please contact your reseller to have details.  
For other countries, check the specific regulations regarding maximum EIRP and duty cycle allowed.




This equipment has been tested and found to comply with the limits for a Class A 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 radio transmitter 20637-KLK915IBTS has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.


Le présent émetteur radio 20637-KLK915IBTS a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d’antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d’antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué pour tout type figurant sur la liste, sont strictement interdits pour l’exploitation de l’émetteur.







	<p>This equipment complies with RSS102's and FCC radiation exposure limits set forth for an uncontrolled environment under the following conditions:</p> <ol style="list-style-type: none"> <li>1.. This equipment should be installed and operated such that a minimum separation distance of 20cm is maintained between the radiator (antenna) and user's/nearby person's body at all times.</li> <li>2. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.</li> </ol> <p>Cet équipement est conforme aux limites d'expositions de la CNR102 applicables pour un environnement non contrôlé aux conditions suivantes :</p> <ol style="list-style-type: none"> <li>1. Cet équipement devra être installé et fonctionner de telle manière qu'une distance minimale de séparation de 20 cm soit maintenue entre la partie rayonnante (l'antenne) et l'utilisateur / les personnes à proximité à tout moment.</li> <li>2 Cet émetteur ne doit pas être colocalisé ou opérer en conjonction avec toute autre antenne ou émetteur.</li> </ol> <p>This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:</p> <ol style="list-style-type: none"> <li>1. This device may not cause interference.</li> <li>2. This device must accept any interference, including interference that may cause undesired operation of the device.</li> </ol> <p>L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :</p> <ol style="list-style-type: none"> <li>1. L'appareil ne doit pas produire de brouillage ;</li> <li>2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.</li> </ol> <p>The radio transmitter has been approved by Industry Canada to operate with a maximum duty cycle of 40% to not overrule the 2.784 W/m<sup>2</sup> RF Field Strength Limits for Devices. The duty cycle, in normal conditions, is far below this limit. Do not operate the Wirnet™ iBTS 915 out of the 40% duty cycle limit.</p> <p>This device must be professionally installed.</p>
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### 6.3 Wirnet™ iBTS 923

The Wirnet™ iBTS 923 complies with the directive 2014/53/EU relating to radio equipment (RED) and is certified for the following countries:

	<p>The power supply of the Wirnet™ iBTS 923 must be a limited source of power. Kerlink is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.</p>
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Country	Label, identification and comments
Brazil	<div style="text-align: center;">  <p>"Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados".</p> <p>"Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados".</p> <p>"This equipment has no right to protection against harmful interference and cannot cause interference in duly authorized systems".</p> </div>

Australia / New Zealand	
Japan	 <span style="border: 1px solid black; padding: 2px;">R 018-170147</span> 当該機器には電波法に基づく、技術基準適合証明等を受けた特定無線設備を装着している。 This equipment contains specified radio equipment that has been certified to the Technical Regulation Conformity Certification under the Radio Law
Malaysia	N° SIRI : E063119 Approval: RFFT/01A/1117/S(17-3534) 
Singapore	Registration Number IMDA TS SRD : N4572-17 Registration Number IMDA TS CMT : S4633-17 <div style="border: 1px solid black; padding: 5px; display: inline-block; text-align: center;"> <b>Complies with IMDA Standards DB106667</b> </div>
Thailand	<div style="border: 1px solid black; padding: 5px; text-align: center; margin-bottom: 10px;"> <b>CLASS B</b>  <b>NBTC ID. B69006-18-3723</b> </div> <p>“เครื่องโทรคมนาคมและอุปกรณ์นี้          มีความสอดคล้องตามมาตรฐานหรือข้อกำหนดทางเทคนิคของ กสทช.”          (This telecommunication equipment conforms to the standard or technical requirements of NBTC)</p> <p>“เครื่องวิทยุคมนาคมนี้มีระดับการแผ่คลื่นแม่เหล็กไฟฟ้าสอดคล้องตามมาตรฐานความปลอดภัยต่อสุขภาพของมนุษย์จากการใช้เครื่องวิทยุคมนาคมที่คณะกรรมการกิจการโทรคมนาคมแห่งชาติประกาศกำหนด”          (This radiocommunication equipment has the electromagnetic field strength in compliance with the Safety Standard for the Use of Radiocommunication Equipment on Human Health announced by the National Telecommunications Commission.)</p> <div style="border: 2px solid black; padding: 10px; margin-top: 10px;">  <p style="text-align: center;">เครื่องวิทยุคมนาคมนี้ ได้รับยกเว้น ไม่ต้องได้รับ              ใบอนุญาตให้มี ใช้ซึ่งเครื่องวิทยุคมนาคม              หรือตั้งสถานีวิทยุคมนาคมตามประกาศ กสทช.              เรื่อง เครื่องวิทยุคมนาคม และสถานีวิทยุ              คมนาคมที่ได้รับยกเว้นไม่ต้องได้รับใบอนุญาต              วิทยุคมนาคม ตามพระราชบัญญัติวิทยุ              คมนาคม พ.ศ. 2498</p> <div style="display: flex; justify-content: space-between; align-items: center;">  <div style="text-align: right;">  <b>โทรคมนาคม</b>              กำกับดูแลเพื่อประชาชน              Call Center 1200 ( Insw5 )           </div> </div> </div>

## 7 Disposal / recycling



Do not dispose of the product with household waste. For proper disposal, contact a waste disposal company. The product packaging (cardboard and liners) can be removed with used paper.

## 8 Warranty

For any Warranty or Maintenance related request (Trouble shooting, help ...),

- If purchased from a Distributor, please contact the distributor directly for Level1 support
- If purchased from Kerlink directly, please open an "Assistance Request" via our ticketing tool called OTRS (Open-source Ticket Request System)
- If you don't have yet your OTRS login/password, please request them to support@Kerlink.com (note that the Product Id or any serial number of one of your products will be required).

Access to Kerlink "Technical Support team" for Maintenance Services is conditioned to a valid Maintenance contract.



The Wirnet™ iBTS is not warranted by Kerlink in case the enclosure is modified, painted, branded out, outlined by CUSTOMER for any reason.  
Feel free to contact us for a guideline for the branding.

## 9 Accessories and Professional Services

For additional information, on available accessories and Professional Services please contact your reseller.



The Wirnet™ iBTS should only be used with accessories or spare parts supplied by your reseller

## 10 Give us your feedback

Your shopping and operational experiences are very important to us.

We would like to invite you to leave review on our products and services. We will appreciate your time and efforts.

We would be very proud to get any photo of your gateway installation. Can you share them to [dmk@kerlink.com](mailto:dmk@kerlink.com)



## 11 Find us in Social Media

We would like to hear from you: any tips, any news to share?

 [@kerlink\\_news](https://twitter.com/kerlink_news)

 [Kerlink](https://www.linkedin.com/company/kerlink)

 [Kerlink channel](https://www.youtube.com/channel/kerlink)

We stay at your disposal for any help on your project. Yours sincerely.

**Kerlink Team**