



(Latest online doc version)

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Wirnet™ iStation
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



KLK03338_11
Kerlink internal use

1 Need help?

The Wirnet™ iStation is an outdoor LoRa Gateway for IoT chain. It is based on LoRa® technology provided by Semtech Company and is fully compatible and interoperable with existing LoRa LPWAN.



Upon specific configuration, it 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 use 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 (note that the “Product ID” of one of your products will be required).
 - How to find the “Product ID”? Please look at the Wirnet iStation sticker placed on the right side of the case

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Wirnet iStation 868¹
PDTIOT-ISS04

48V == 140mA (PoE)
42-57V == 170mA (DC)
IP67

Board ID: 921CHa010001
Product ID: 921CKa010001
MAC ADDR: 70:76:FF:03:00:01
EUI: 7076FF0056010001

CE RoHS

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

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Wirnet iStation 915¹
PDTIOT-ISS05

48V == 140mA (PoE)
42-57V == 170mA (DC)
IP67

Board ID: 921CGa010001
Product ID: 921CJa010001
MAC ADDR: 70:76:FF:03:00:02
EUI: 7076FF0055010001

FCC ID: 2AFYS-KLKWIS915
IC: 20637-KLKWIS915
Model: Wirnet iStation 915
CAN ICES3-3 (B)/NMB-3(B)

Contains FCCID: XMR201903EG25G
Contient IC: 10224A-201903EG25G
Model: EG25G

FC RoHS

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.

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Wirnet iStation 923¹
PDTIOT-ISS06

48V == 140mA (PoE)
42-57V == 170mA (DC)
IP67

Board ID: 919CFa010001
Product ID: 923Cla010001
MAC ADDR: 70:76:FF:03:00:0D
EUI: 7076FF0054010001

CE RoHS

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.



- List of documents and information for self-help:
 - Setup of Wirnet™ iStation Gateway: 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: (from end of November 2019) 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 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.
- For any other question related to our product, please contact our distributor or Kerlink sales@kerlink.com or + 33 2 99 12 29 00.

2 Manufacturer


Kerlink, 1 Rue Jacqueline Auriol 35235 Thorigné-Fouillard, France
 Tel.: +33 (0)2 99 12 29 00 – Fax: +33 (0) 2 99 12 29 11
 www.kerlink.com

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

4 Package Contents

	<ul style="list-style-type: none"> • Only use the Wirnet™ iStation for its intended use "Normal conditions of use". • Maintenance and repair must be carried out by qualified personnel authorized by the manufacturer. • The enclosure of the Wirnet™ iStation must not be opened by CUSTOMER. • The Wirnet™ iStation should only be used with accessories or spare parts supplied by your reseller.
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Kerlink Wirnet™ iStation



Assembly Parts:	Torque (N.m)	Screw P/N:	Torque (N.m)
1.M25 dust Cover (Clear)	0,7 N.m		
2.M25 dust Cover (Black)	0,7 N.m	Already mounted	
3.RF Switch Cap	Torque by hand		
4.Plastic Vent	0,5 N.m		
5. Cable Gland (Step1.)	1.1 N.m	Cable Gland (Step2) 	1.1 N.m
6. Grounding Cable		P/N:R-14-0049 X1 	0.9 N.m
7. Mounting			

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Remarks:

- The Wirnet™ iStation may be mounted on a wall using four oblong holes located on the mounting bracket (hole spacing 120 mm in width and 116.5 mm in length).
- The Stainless-Steel Hose Clamp for mounting on a pole are not included, the width should not exceed 14mm.
- The screws for mounting on a wall are not included, the diameter of the screws must be 6mm.
- The covers must be screwed at their maximum to ensure watertightness (USIM and LED/buttons)

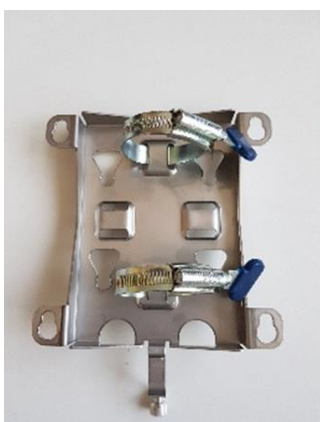
5 Markings

Symbol	Description	Symbol	Description
Wirnet iStation	Type of equipment		QR Code
42-57V 200mA	Power supply information	 or other marking	CE marking indicating that the product complies with current European directives or other marking depending on the country
Board ID	Serial number of board		Marking indicating that the product complies with RoHS directives
Product ID	Serial number of product		Do not dispose of with domestic waste
MAC ADDR	MAC address		Product must be installed on a non-flammable substrate (UL94V0). Refer to the installation instructions Refer to the installation instructions before powering up
IP 67	Indice of protection		

6 Installation of Wirnet™ iStation

6.1 Mounting of the enclosure

	When installing the product, the ground connection must always be made first.
	The Wirnet™ iStation enclosure can be mounted on a pole by strapping (see the following example), any concrete pedestal, concrete wall or any non-flammable surface (UL94-V0).



Gateway support
(Strapping not included)



Installation support on a pole with strapping




Mandatory ground connection on the Wirnet™ iStation



Installation the Wirnet™ iStation on the support

6.2 Setting connections

	<p>Before setting all connections, ensure that the power supply is not connected to the mains supply.</p>
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GNSS, 3G/4G and LoRa antenna are integrated. An external optional LoRa antenna can be added by opening the n°3 (please refer on the chart page 3) button and then screw the antenna directly or via a cable.



Once the Wirnet™ iStation is installed, you can select up to 2 technologies to set up the access to Internet for the data backhaul:

- Ethernet connection, requiring an Ethernet access through a dedicated RJ45 cable (not included)
- 3G/4G cellular connection, requiring a USIM (not included) and a data subscription (not included)

Note that both configurations can be used in parallel. For example, RJ45 Ethernet with a 3G / 4G link as a backup.




Ethernet connection
















Insert Sim

Regarding the power supply, the following equipment can be used:

- End-Span or Mid-Span at least a 15W PoE (Power over Ethernet) (not included)

	<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"> • Category: 6A • Shielding: STP (U/FTP) or SSTP (S/FTP) • Section conductors: AWG26 • External jacket: LSZH or PUR • Maximum length: 100 meters • Cable gland 6.6-8.6mm. <p>Operating temperature range: -40°C to +60°C Altitude max. < 2000m / hygrometry 95% non-condensing</p>
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6.3 Assembly instruction for sealing the connectors

	<p>Pay attention to the gasket when screwing the 2 caps: if you screw too hard, it may twist.</p> <p>Here is an example of what is OK and what is not.</p> <p>If you use a torque wrench, the tightening torque should be 1.6 Nm max</p>		
	<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;">   </td> <td style="text-align: center;">   </td> </tr> </table>	 	 
 	 		
	<p>To avoid environmental aggression (moisture, pollution, etc.) and ensure their reliability, be sure to apply the self-amalgamating tape on the N connector as show below:</p> <div style="text-align: center;">  </div>		

6.4 First connexion

- A push-button is available on the bottom of enclosure.
- The ON/OFF/RST button must be pressed during 1s to generate a SW reset of the product.
- Note that a long press for 5s turns off the gateway.

Once the power is “ON”, please check the LED status and start the SW configuration. The iStation should power on, showing:

- a solid green LED (Power LED, under the power button),
- accompanied by a red LED (Status LED =operations status) starting solid, then blinking during bootup.

Gateway status	«Status LED» behaviour
Boot part 1	Fix on
Boot part 2	Heart beat
Boot part 3	Blink every second
Run time	Off
Power down sequence	Heartbeat
Restore backup	Blink / 2 seconds
Restore stock	Blink / 4 seconds



For more information on the « Quick start of Wirnet™ iStation Gateway, please consult the Kerlink Wiki: http://wikikerlink.fr/wirnet-productline/doku.php?id=wiki:quickstart:quickstart_istation

6.5 First connexion

The Wirnet product line 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>/`

This means for the Wirnet iStation: `http://klk-wiis-03002e/`

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

The default credentials are:

Login: admin

Password: pwd4admin

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

7 Declaration of Conformity

7.1 Wirnet™ iStation 868

Simplified EU Declaration of Conformity

Hereby, Kerlink, declares that the radio equipment type Wirnet™ iStation 868 follows Directive 2014/53/EU.

The full text of the EU Declaration of Conformity is available at the following internet address:

www.kerlink.com/customer-support/support-wirnet-istation/



In Europe, the Wirnet™ iStation 868 station 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%



The power supply of the Wirnet™ iStation 868 must be a limited source of power. Note that: If the LoRa antenna is changed, the output power must be adjusted to consider 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™ iStation 868.
For other countries, outside Europe, check the frequency range, the maximum EIRP and duty cycle allowed.

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™ iStation 868 must be a limited source of power. Note that: If the LoRa antenna is changed, the output power must be adjusted to consider the gain of the antenna in order to not overrule local regulation.
Some countries in Europe may have specific frequency ranges, EIRP and duty cycles regulations. Check the local regulations before installing and commissioning the Wirnet™ iStation 868.
For other countries, outside Europe, check the frequency range, the maximum EIRP and duty cycle allowed.


7.2 Wirnet™ iStation 915



The Wirnet™ iStation 915 follows both FCC and IC regulations. The associated FCC and IC identifiers of the Wirnet™ iStation 915 are:

Model: Wirnet™ iStation 915	Model: EG25G
FCC ID: 2AFYS-KLKWIS915	Contains FCC ID: XMR201903EG25G
IC: 20637-KLKWIS915	Contient IC: 10224A-201903EG25G

	<p>The power supply of the Wirnet™ iStation 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.</p> <p>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.</p>
	<p>Some conditions have to be respected to maintain the FCC and IC compliance of the devices 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.</p>


	<p>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.</p> <p>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:</p> <ul style="list-style-type: none"> — 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 <p>This radio transmitter 20637-KLKWIS915 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.</p> <p>Le présent émetteur radio 20637-KLKWIS915 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> <p>External antenna used: gain 3dBi or 6dBi, dipole, 50 Ω, vertical, omnidirectional</p>
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	<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"> 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. 2. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. <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"> 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. 2 Cet émetteur ne doit pas être co-localisé ou opérer en conjonction avec toute autre antenne ou émetteur. <p>This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:</p> <ol style="list-style-type: none"> 1. This device may not cause interference. 2. This device must accept any interference, including interference that may cause undesired operation of the device. <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"> 1. L'appareil ne doit pas produire de brouillage; 2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement. <p>This device must be professionally installed.</p>
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Country	Label, identification and comments
Mexico	<p>Marca : Kerlink Modelo : Wirnet iStation 915 IFETEL : RTIKEWI21-1021</p>  

7.3 Wirnet™ iStation 923

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

 Information	<p>The power supply of the Wirnet™ iStation 923 must be a limited source of power.</p> <p>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
Australia New Zealand	
Argentina	
Brazil	 <p>Resolução 680/2017: "Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados"</p>
	 <p>Resolução 680/2017: "Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados"</p>
Japan	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="display: flex; align-items: center; margin-bottom: 10px;">  <div style="margin-left: 10px;"> <p>R 018-190416</p> <p>R 018-200339</p> </div> </div> <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>R 201-190133</p> <p>T AD190040201</p> </div> </div> <p>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。</p> <p>This equipment contains specified radio equipment that has been certified to the Technical Regulation Conformity Certification under the Radio Law</p> </div>

<p>Indonesia</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>66489/SDPPI/2020 11019</p>  <p>Dilarang melakukan perubahan spesifikasi yang dapat Menimbulkan gangguan fisik dan/atau elektromagnetik Terhadap lingkungan sekitarnya</p>  </div>
	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>69867/SDPPI/2020 5258</p>  <p>Dilarang melakukan perubahan spesifikasi yang dapat Menimbulkan gangguan fisik dan/atau elektromagnetik Terhadap lingkungan sekitarnya</p>  </div>
<p>South Korea</p>	<div style="text-align: center;">  <p>R-R-klk-WIIS923</p> <p>이 기기는 사용중 전파혼신 가능성이 있으며, 타 기기로부터 유해한 혼신을 받을수 있음 There is a possibility of radio interference during use of this device, and it may receive harmful interference from other devices</p> </div>
<p>Malaysia</p>	<div style="text-align: center;">  <p>MCMC</p> </div>
<p>Singapore</p>	<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>Complies with IMDA Standards DB106667</p> </div>

<p>Thailand</p>	<div style="text-align: center; border: 1px solid black; padding: 10px; margin-bottom: 10px;">  <p>Class B NBTC ID. B69026-20-3723</p> </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;"> <div style="text-align: center;">  </div> <p style="text-align: center;">เครื่องวิทยุคมนาคมนี้ ได้รับยกเว้น ไม่ต้องได้รับใบอนุญาตให้มี ใช้ซึ่งเครื่องวิทยุคมนาคมหรือตั้งสถานีวิทยุคมนาคมตามประกาศ กสทช. เรื่อง เครื่องวิทยุคมนาคม และสถานีวิทยุคมนาคมที่ได้รับยกเว้นไม่ต้องได้รับใบอนุญาตวิทยุคมนาคม ตามพระราชบัญญัติวิทยุคมนาคม พ.ศ. 2498</p> <div style="display: flex; justify-content: space-around; align-items: center;">  <div style="text-align: center;"> <p>nabp. โทรคมนาคม กำกับดูแลเพื่อประชาชน Call Center 1200 (Insw5)</p> </div> </div> </div>
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8 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.

9 Warranty

Contact your reseller for warranty conditions of the Wirnet™ iStation.



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

10 Accessories and Professional Services

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

11 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



12 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

Notes :

A series of 28 horizontal dotted lines provided for taking notes.