

# Wirnet™ iBTS

## LoRaWAN® Outdoor Gateway for the Internet of Things



Standard Version



Compact Version

The “Wirnet™ iBTS” is the ideal gateway to support your smart city, smart building or every smart project as it combines both an excellent Outdoor coverage (more than 15km in direct line-of-sight and 2km in urban environment) and operational excellence.



Smart Cities



Smart Building



Smart Metering



Smart Agriculture & Environment

In France, Kerlink is certified ISO9001: 2015 by AFNOR certification. The Quality Management System gives high priority to Customer satisfaction and progress implementation.



### Key Features

- **Outdoor** LoRa® Gateway,
- **Lifetime Guarantee**,
- Supported unlicensed bands : 863-874.4MHz (EMEA, India), 902-928MHz (North America), 915-928MHz (APAC, Latin America),
- Supported LoRaWAN® regional parameters: EU863-870, IN865-867, RU864-870, US902-928, AU915-928, AS923, KR920-923,
- **Modular configurations:**
  - from 16 channels (1 x LoRa RF modem) to 80 channels (4 x LoRa RF modem),
  - Single omnidirectional antenna, spatial diversity, dual polarization, tri-sectorization,
  - Possibility to support multiple unlicensed bands in a single gateway,
- Backhaul connectivity: Cellular 2G/3G/4G evolutive to 5G (mini-PCIe module), Ethernet 10/100 Mbps (RJ45),
- **Geolocation ready:** Using the fine timestamps on ALL the channels for improved geolocation services thanks to FPGA. Fully compliant with Semtech reference design v2. No proprietary locked solution; **Synchronization with GPS, combines RSSI and TDOA measurements.**

### Key Differentiators

#### High performance, reliability & future-proof

- Our product is **made in France**,
- Semtech Reference Design v2,
- Built-in high rejection filters,
- LR-FHSS Ready: Evolutive design using modem SDR (Software Design Radio) architecture.

#### Secure HW and SW architecture

- SecureBoot (Signed firmware),
- SecureStorage (keys and certificates in secured area) using Trusted Execution Environment solution,
- Secured links and backhaul protection (OpenVPN/IPsec),
- Reboot (watchdog) and recovery to previous Management config (or factory config if the boot issue is not fixed).

All product specifications are subject to change without notice (V3.2)

## Zoom on “iBTS Standard” Version

- **Modular configuration:**
  - 1 x UC module,
  - **Select up to 2** x WAN modules (optional),
  - **Select up to 4** x LoRa® RF modem modules (16 channels each), Each LoRa RF modem allows 16ch RX (125 kHz, multi Spreading Factor) + 2ch RX (250kHz or 500kHz, mono Spreading Factor) + 2ch FSK + 2ch TX (without antenna diversity) to get up to 80 ch RX (with 4 x LoRa RF modem),
- Size: 295 x 317 x 125 mm (including mounting kit),
- Ingress protection (IP66),
- Weight:
  - About 6,2Kg (including mounting kit) with 1 x LoRa RF modem,
  - About 7,2Kg (including mounting kit) with 3 x LoRa RF modems.

## Technical Features

- Sniffer for LBT (Listen Before Talk),
- Rx Sensitivity: -141 dBm (SF12),
- TX Conducted Power: configurable from 5dBm to 30dBm,
- Range -40°C +60°C, (for gateway only, without power supply),
- Humidity: 5% to 95%,
- Out-band radio scanners to monitor the entire band to detect real load of the band (Spectrum analysis compliant),
- Supercapacitors for clean shut down of applications in case of power failure,
- Power:
  - Power Over Ethernet **30W** for **Compact** version (accessory),
  - Power Over Ethernet **60W** for **Standard** version (accessory),
  - Power Over Ethernet 48V DC class 4 (accessory),
  - DC power supply (ex : solar panel use) : 11 to 56V DC (accessory),
  - Power control : ignition detection, software OFF switching, ON/OFF button.

Thanks to their expertise and experience, Kerlink teams are fully mobilized to help you develop your business and reduce your operational and commercial risks.

**Don't hesitate to contact us:**

## Software Features

- **Same Kerlink software on all i-Series (for infrastructure homogeneity and easy maintenance)**
- **Dynamic web interface (On-the fly modifications),**
- **Programmable Gateway:** Toolchain, libraries and header files for compilation of in-house SW, or extra packages additions,
- **Including:**
  - Operating System: KerOS with embedded GNU/Linux based on Yocto LTS and Kernel LTS
  - Native Language Support: Python 3, C/C++ and Shell,
  - Kerlink Common Packet Forwarder (Semtech Packet Forwarder, GWMP), Basic Station

## Zoom on “iBTS Compact” Version

- **Compact configuration:**
  - 1 x UC module,
  - 1 x WAN module (**optional**),
  - 1 x LoRa® RF modem module (16 channels),
- **Size:** 357 x 189 x 150 mm (including mounting kit),
- Ingress protection (IP67),
- **Weight:** about 3Kg (including mounting kit).

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communication is everything

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## Added-Value Services for all gateways

- **Access to Kerlink Wiki**

The Kerlink Wiki gives you full access to comprehensive and up-to-date documentation about the delivered solution: installation and setup instructions, configuration steps, connectivity options, etc.

The content of the wiki at the time of ordering is **the reference** and prevails in case of discrepancy.

Consult it before buying to ensure the solution fits your needs: [Click here](#)

- **Zero Touch Provisioning (ZTP) and Zero Touch Maintenance (ZTM)**

- Access to embedded Chirpstack LNS

## Available Options

### **Maintain Program**

For customers aiming to enhance their IoT network based on Kerlink gateways.

**Including:**

- Unlimited level 2/3 support
- Team of dedicated experts
- Response within 8 working hours
- Clear history and tracking
- Personalized support
- Access to our Wanery Management Cockpit
  - Real-time overview of your gateway's health
  - Precise monitoring of your network's performance

### **Operate offer**

For customers focused on their core business.

**Including:**

- Maintain Program
- Kerlink commitment on data air availability (SLAs)
- Network Operating Center with dedicated experts monitoring your network
- Pro-active and preventive maintenance
- Monthly reports about health of network (and recommendations)
- Dedicated Account manager

For more informations about our Maintain Program or our Operate offer, contact us: [sales@kerlink.com](mailto:sales@kerlink.com)



Wirnet™ iBTS (standard)



Wirnet™ iBTS Compact

## Wirnet™ iBTS Compact - Ordering references

### Product Ordering References

Reference	Designation	Description	ISM Frequencies
PDTIOT-MCS01	16CH LoRa, ETH backhaul only	Wirnet iBTS Compact - 1LOC868-0W868-EU	863-874.4MHz
PDTIOT-MCS02	16CH LoRa, 2G/3G/4G backhaul + ETH backhaul	Wirnet iBTS Compact - 1LOC868-1W868-EU	863-874.4MHz
PDTIOT-MCS18	16CH LoRa, Double 2G/3G/4G backhaul	Wirnet iBTS Compact 1LOC 1DW-EUEU	863-874.4MHz
PDTIOT-MCS12	16CH LoRa, 2G/3G/4G backhaul + ETH backhaul	Wirnet iBTS Compact - 1LOC915-1W915-US	902-928MHz
PDTIOT-MCS19	16CH LoRa, 2G/3G/4G backhaul + ETH backhaul	Wirnet iBTS Compact 1LOC923 1W915-US	915-928MHz
PDTIOT-MCS10	16CH LoRa, 2G/3G/4G backhaul + ETH backhaul	Wirnet iBTS Compact - 1LOC923-1W923-EU	915-928MHz
PDTIOT-MCS15	16CH LoRa, 2G/3G/4G backhaul + ETH backhaul	Wirnet iBTS Compact - 1LOC923-1W923-AS	915-928MHz

### Common accessories for outdoor installation

KLK03524	Self-amalgamating tape - 3m	Mounting accessories for outdoor installation
KLK03540	Stainless Steel Hose clamp	Mounting accessories for outdoor installation

### 868 Accessory Ordering References (Wirnet™ iBTS Compact)

#### DC/DC CONVERTER

KLK02898	Power Supply	40W - DC/DC CONVERTER - 48VDC Input
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#### PoE INJECTOR

Reference	Designation	Description	Recommendation
KLK03525	POE Injector	PoE Injector 30 W indoor – 48V DC Input	
KLK03505	POE Injector	PoE Injector 30 W indoor - AC Input - EU	
KLK03554	In addition to KLK03505	AC Power supply cable for <b>UK (IEC-320-C13)</b>	
KLK03596	POE Injector	PoE Injector - 30 W Outdoor - AC Input	

#### EXTERNAL ANTENNA (optional)

ACCIOT-KAN00	Antenna + 1m cable + support included	Antenna kit Omni 868 MHz 3 dBi
ACCIOT-KAN01	Antenna + 1m cable + support included	Antenna kit Omni 868 MHz 6 dBi
ACCIOT-KAN06	Product Subpart	Connectivity kit for antenna diversity (Antenna not included)

#### (Outdoor) CAVITY FILTER

KLK02523	Cavity filter 865-867 MHz	India	
KLK02916	CAVITY FILTER 863-873 MHz - OUTDOOR	EU coexistence high power emitters	(former ACCIOT-CAV04)
KLK03410_01	Cavity filter 865-870 MHz	865-870 MHz, EU coexistence LTE800, RGSM	

#### SURGE PROTECTION

KLK02817	Surge Protection for POE link - Outdoor	PoE Surge protection - outdoor	Recommended
KLK02818	Surge Protection for POE link - Indoor	PoE Surge protection - Indoor	Recommended
KLK02881	Surge Protection - DC Link – Indoor	DC Input	
KLK02900	Surge Protection for Lora link - Outdoor	RF coaxial Surge protection - outdoor	Recommended

ACCWM2-SDE00	Debug Probe	Wirnet iBTS / Wirma Debug Probe
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## 915 Accessory Ordering References (Wirnet™ iBTS Compact)

DC/DC CONVERTER			
KLK02898	Power Supply	40W - DC/DC CONVERTER - 48VDC Input	
PoE INJECTOR		Description	Recommendation
KLK03525	POE Injector	PoE Injector 30 W indoor – 48V DC Input	
KLK03505	POE Injector	PoE Injector 30 W indoor - AC Input - EU	
KLK03506	POE Injector	PoE Injector 30 W indoor - AC Input - US	
KLK03596	POE Injector	PoE Injector - 30 W Outdoor - AC Input	
EXTERNAL ANTENNA (optional)			
ACCIOT-KAN02	Antenna + 1m cable + support included	Antenna kit Omni 915/923 MHz 6 dBi	
ACCIOT-KAN03	Antenna + 1m cable + support included	Antenna kit Omni 915/923 Mhz 3 dBi	
ACCIOT-KAN06	Product Subpart	Connectivity kit for antenna diversity (Antenna not included)	
SURGE PROTECTION			
KLK02817	Surge Protection for POE link - Outdoor	PoE Surge protection - outdoor	
KLK02818	Surge Protection for POE link - Indoor	PoE Surge protection - Indoor	
KLK02881	Surge Protection - DC Link – Indoor	DC Input	
KLK02900	Surge Protection for Lora link - Outdoor	RF coaxial Surge protection - outdoor	Recommended
(Outdoor) CAVITY FILTER			
KLK02906	Cavity filter 915-920MHz	Philippines, Israel, Cuba	
KLK02973	Cavity filter 902-928MHz	USA, Canada, Mexico	
DEBUG			
ACCWM2-SDE00	Debug Probe	Wirnet iBTS / Wirma Debug Probe	

## 923 Accessory Ordering References (Wirnet™ iBTS Compact)

DC/DC CONVERTER			
KLK02898	Power Supply	40W - DC/DC CONVERTER - 48VDC Input	
PoE INJECTOR		Description	Recommendation
KLK03525	POE Injector	PoE Injector 30 W indoor – 48V DC Input	
KLK03505	POE Injector	PoE Injector 30 W indoor - AC Input - EU	
KLK03055	In addition to KLK03505	AC Power supply cable for <b>Japan (IEC-320-C13)</b>	
KLK03553	In addition to KLK03505	AC Power supply cable for <b>Australia (IEC-320-C13)</b>	
KLK03596	POE Injector	PoE Injector - 30 W Outdoor - AC Input	
EXTERNAL ANTENNA (optional)			
ACCIOT-KAN02	Antenna + 1m cable + support included	Antenna kit Omni 915/923 MHz 6 dBi	
ACCIOT-KAN03	Antenna + 1m cable + support included	Antenna kit Omni 915/923 Mhz 3 dBi	
ACCIOT-KAN06	Product Subpart	Connectivity kit for antenna diversity (Antenna not included)	
SURGE PROTECTION			
KLK02817	Surge Protection for POE link - Outdoor	PoE Surge protection - outdoor	
KLK02818	Surge Protection for POE link - Indoor	PoE Surge protection - Indoor	
KLK02881	Surge Protection - DC Link – Indoor	DC Input	
KLK02900	Surge Protection for Lora link - Outdoor	RF coaxial Surge protection - outdoor	Recommended
(Outdoor) CAVITY FILTER			
KLK02522	Cavity filter 920-925 MHz	South Korea, Singapore, HK, Taiwan, Thailand, Cambodia	
KLK02905	Cavity filter 918-923 MHz	Indonesia Malaysia, Vietnam, Myanmar	
KLK02909_01	Cavity filter 920-928 MHz	New-Zealand, Japan, Costa Rica, Venezuela	
KLK03306	Cavity filter 915-928 MHz	APAC, LATAM	
DEBUG			
ACCWM2-SDE00	Debug Probe	Wirnet iBTS / Wirma Debug Probe	

## Wirnet™ iBTS Full - Ordering references

### Product Ordering References

Reference	Designation	Description	ISM Frequencies
PDTIOT-MSS16	Wirnet iBTS - 1LOC923-1W923-AS	16CH LoRa, 2G/3G/4G backhaul + ETH backhaul	915-928MHz

### Common accessories for outdoor installation

KLK03524	Self-amalgamating tape - 3m	Mounting accessories for outdoor installation	
KLK03540	Stainless Steel Hose clamp	Mounting accessories for outdoor installation	

### 868 Accessory Ordering References (Wirnet™ iBTS Full)

#### DC/DC CONVERTER

KLK02882	Power Supply	60W - DC/DC CONVERTER 48VDC input	
KLK02898	Power Supply	40W - DC/DC CONVERTER - 48VDC Input	16 CH only

#### PoE INJECTOR

KLK03505	POE Injector	PoE Injector 30 W indoor - AC Input - EU	16 CH only
KLK03550	POE Injector	PoE Injector - 60 W indoor - AC Input	
KLK03554	In addition to KLK03505, KLK03550	AC Power supply cable for <b>UK (IEC-320-C13)</b>	

#### EXTERNAL ANTENNA (optional)

ACCLOT-KAN00	Antenna + 1m cable + support included	Antenna kit Omni 868 MHz 3 dBi	
ACCLOT-KAN01	Antenna + 1m cable + support included	Antenna kit Omni 868 MHz 6 dBi	
ACCLOT-KAN05	Antenna	Kit WAN 700-2700 MHz 5dBi - 5m - N Male	
ACCLOT-KAN06	Product Subpart	Connectivity kit for antenna diversity (Antenna not included)	

#### (Outdoor) CAVITY FILTER

KLK02523	Cavity filter 865-867 MHz	India	
KLK02916	Cavity filter 868 MHz	863-873MHz - EU coexistence high power emitters	
KLK03410_01	Cavity filter 865-870 MHz	865-870 MHz, EU coexistence LTE800, RGSMS	

#### SURGE PROTECTION

KLK02817	Surge Protection for POE link - Outdoor	PoE Surge protection - Outdoor	Recommended
KLK02818	Surge Protection for POE link - Indoor	PoE Surge protection - Indoor	Recommended
KLK02819	RF Surge Protection for GSM and GPS Link	RF Surge protection - LoRa	Recommended
KLK02881	Surge Protection - DC Link - Indoor	DC Input	
KLK02900	Surge Protection for Lora link - Outdoor	RF coaxial Surge protection - Outdoor	Recommended

#### DEBUG

ACCWM2-SDE00	Debug Probe	Wirnet iBTS / Wirma Debug Probe	
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### 915 Accessory Ordering References (Wirnet™ iBTS Full)

DC/DC CONVERTER			
KLK02898	Power Supply	40W - DC/DC CONVERTER - 48VDC Input	16 CH only
KLK02882	Power Supply	60W - DC/DC CONVERTER 48VDC input	
PoE INJECTOR			
KLK03525	POE Injector	PoE Injector 30 W indoor – 48V DC Input	16 CH only
KLK03505	POE Injector	PoE Injector 30 W indoor - AC Input - EU	16 CH only
KLK03506	POE Injector	PoE Injector 30 W indoor - AC Input - US	
KLK03550	POE Injector	PoE Injector - 60 W indoor - AC Input	
EXTERNAL ANTENNA (optional)			
ACCIOT-KAN02	Antenna + 1m cable + support included	Antenna kit Omni 915/923 MHz 6 dBi	
ACCIOT-KAN03	Antenna + 1m cable + support included	Antenna kit Omni 915/923 MHz 3 dBi	
ACCIOT-KAN05	Antenna WAN + 5m cable + support included	Kit WAN 700-2700 MHz 5dBi - 5m - N Male	
ACCIOT-KAN06	Product Subpart	Connectivity kit for antenna diversity (Antenna not included)	
(Outdoor) CAVITY FILTER			
KLK02973	Cavity filter 902-928MHz	USA, Canada, Mexico	
KLK02906	Cavity filter 915-920 MHz	Philippines, Israel, Cuba	
SURGE PROTECTION			
KLK02817	Surge Protection for POE link - Outdoor	PoE Surge protection - Outdoor	
KLK02818	Surge Protection for POE link - Indoor	PoE Surge protection - Indoor	
KLK02819	RF Surge Protection for GSM and GPS Link	RF Surge protection - LoRa	Recommended
KLK02881	Surge Protection - DC Link – Indoor	DC Input	
KLK02900	Surge Protection for Lora link - Outdoor	RF coaxial Surge protection - Outdoor	Recommended
DEBUG			
ACCWM2-SDE00	Debug Probe	Wirnet iBTS / Wirma Debug Probe	

### 923 Accessory Ordering References (Wirnet™ iBTS Full)

DC/DC CONVERTER			
KLK02898	Power Supply	40W - DC/DC CONVERTER - 48VDC Input	16 CH only
KLK02882	Power Supply	60W - DC/DC CONVERTER 48VDC input	
PoE INJECTOR			
KLK03525	POE Injector	PoE Injector 30 W indoor – 48V DC Input	16 CH only
KLK03505	POE Injector	PoE Injector 30 W indoor - AC Input - EU	16 CH only
KLK03055	In addition to KLK03505	AC Power supply cable for <b>Japan (IEC-320-C13)</b>	
KLK03550	POE Injector	PoE Injector - 60 W indoor - AC Input	
KLK03553	In addition to KLK03505	AC Power supply cable for <b>Australia (IEC-320-C13)</b>	
EXTERNAL ANTENNA (optional)			
ACCIOT-KAN02	Antenna + 1m cable + support included	Antenna kit Omni 915/923 MHz 6 dBi	
ACCIOT-KAN03	Antenna + 1m cable + support included	Antenna kit Omni 915/923 MHz 3 dBi	
ACCIOT-KAN05	Antenna WAN + 5m cable + support included	Kit WAN 700-2700 MHz 5dBi - 5m - N Male	
ACCIOT-KAN06	Product Subpart	Connectivity kit for antenna diversity (Antenna not included)	
(Outdoor) CAVITY FILTER			
KLK02522	Cavity filter 920-925 MHz	South Korea, Singapore, HK, Taiwan, Thailand, Cambodia	
KLK02905	Cavity filter 918-923 MHz	Indonesia Malaysia, Vietnam, Myanmar	
KLK02909_01	Cavity filter 920-928 MHz	New-Zealand, Japan, Costa Rica, Venezuela	
KLK03306	Cavity filter 915-928 MHz	APAC, LATAM	
SURGE PROTECTION			
KLK02817	Surge Protection for POE link - Outdoor	PoE Surge protection - Outdoor	
KLK02818	Surge Protection for POE link - Indoor	PoE Surge protection - Indoor	
KLK02819	RF Surge Protection for GSM and GPS Link	RF Surge protection - LoRa	Recommended
KLK02881	Surge Protection - DC Link – Indoor	DC Input	
KLK02900	Surge Protection for Lora link - Outdoor	RF coaxial Surge protection - Outdoor	Recommended
DEBUG			
ACCWM2-SDE00	Debug Probe	Wirnet iBTS / Wirma Debug Probe	