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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**

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

afaq ISO 9001 Qualité AFNOR CERTIFICATION

Key Features

- **Outdoor** LoRa® Gateway,
- 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

- 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).

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LoRaWAN® Outdoor Gateway for the Internet of Things

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.

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).

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.

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

Added-Value Services for all gateways

- Lifetime Guarantee
- Access to Kerlink Wiki
- Zero Touch Provisioning (ZTP) and Zero Touch Maintenance (ZTM)

More options :

- Maintain offer : Priority support, Access to Wanesy Maganement Cockpit including inventory, Software packages management, remote reboot, alerting features
- Operate offer : SLAs, Network Operating Center, Pro-Active and preventive maintenance, Reports and recommendations for network optimization

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:

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Available from
CONCEPT 13
www.concept13.co.uk
(The LoRaWAN Experts)

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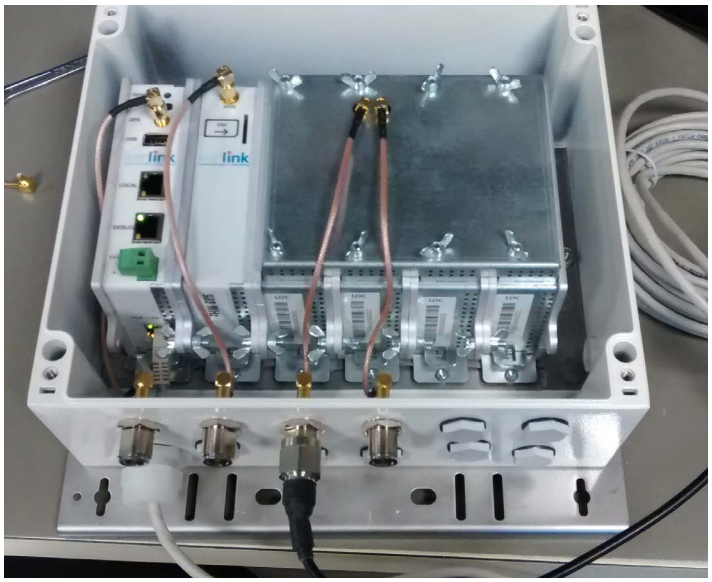
Wirnet™ iBTS

LoRaWAN® Outdoor Gateway for the Internet of Things



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

PoE INJECTOR	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 **UK (IEC-320-C13)**	
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	

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 **Japan (IEC-320-C13)**	
KLK03553	In addition to KLK03505	AC Power supply cable for **Australia (IEC-320-C13)**	
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, Mynanmar	
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 **UK (IEC-320-C13)**	
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-KAN05	Antenna	Kit WAN 700-2700 MHz 5dBi - 5m - N Male	
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 868 MHz	863-873MHz - EU coexistence high power emitters	
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
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 **Japan (IEC-320-C13)**	
KLK03550	POE Injector	PoE Injector - 60 W indoor - AC Input	
KLK03553	In addition to KLK03505	AC Power supply cable for **Australia (IEC-320-C13)**	
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, Mynanmar	
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	