

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.



Key Features

- **Outdoor** LoRa® Gateway,
- Ingress protection (IP67),
- 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,
- LoRa_E 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 ProvenCore™ 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 (V2.1)

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),
- 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),
- **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),
- Capacitor 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 FW as Wirnet™ iStation and iFemtoCell:** same user experience, quicker integration,
- **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 2.4 and LTS kernel 4.14,
 - Native Language Support: Python2, C/C++ and Shell,
 - Included packages: SQLite (Database), Connman/Ofono, NTPd, lighttpd.

Value-added Services

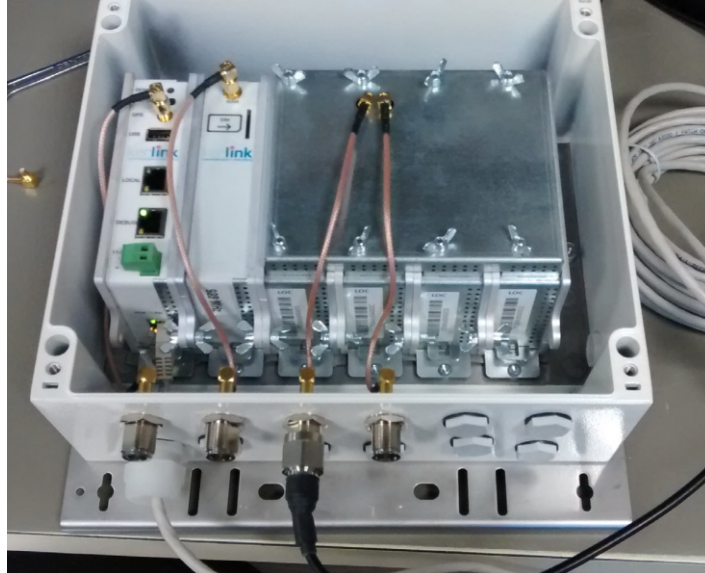
- **Free access to Kerlink Wiki for customers,**
- Plug & Play installation (option),
- Wirnet™ iBTS is part of the end-to-end LoRa® connectivity solution with Kerlink Wanesy™ Management Center, remote monitoring and Operations Management suite (option),
- Maintenance Services (option),
- **Kerlink Project Management:** a comprehensive service offering and a global network of specialist integrators to support your entire project.

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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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-MCS11	16CH LoRa, ETH backhaul only	Wirnet iBTS Compact - 1LOC915-0W915-US	902-928MHz
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-MCS09	16CH LoRa, ETH backhaul only	Wirnet iBTS Compact - 1LOC923-0W923-EU	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

868 Accessory Ordering References (Wirnet™ iBTS Compact)

POE INJECTOR		Description	Recommendation
KLK02681	POE Injector	PoE Injector 30 W indoor - AC Input - EU	
KLK02855	POE Injector	PoE Injector 30 W indoor - 48VDC Input	
POWER SUPPLY			
KLK02898	Power Supply	40W - DC/DC CONVERTER - 48VDC 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	
KLK02915	Cavity filter 867.5 MHz	865-870MHz - EU coexistence LTE800, RGSM	
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
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	

915 Accessory Ordering References (Wirnet™ iBTS Compact)

POE INJECTOR		Description	Recommendation
KLK02765	POE Injector	PoE Injector 30 W indoor - AC Input - US	
KLK02855	POE Injector	PoE Injector 30 W indoor - 48VDC Input	
POWER SUPPLY			
KLK02898	Power Supply	40W - DC/DC CONVERTER - 48VDC 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	
(Outdoor) CAVITY FILTER			
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)

POE INJECTOR		Description	Recommendation
KLK02681	POE Injector	PoE Injector 30 W indoor - AC Input - EU	
KLK02855	POE Injector	PoE Injector 30 W indoor - 48VDC Input	
POWER SUPPLY			
KLK02898	Power Supply	40W - DC/DC CONVERTER - 48VDC 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	
(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	
KLK02906	Cavity filter 915-920 MHz	Philippines, Israel, Cuba	
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-MSS01	Wirnet iBTS - 1LOC868-0W868-EU	16CH LoRa, ETH backhaul only	863-874.4MHz
PDTIOT-MSS02	Wirnet iBTS - 1LOC868-1W868-EU	16CH LoRa, 2G/3G/4G backhaul + ETH backhaul	863-874.4MHz
PDTIOT-MSS03	Wirnet iBTS - 3LOC868-0W868-EU	3x16CH LoRa, ETH backhaul only	863-874.4MHz
PDTIOT-MSS04	Wirnet iBTS - 3LOC868-1W868-EU	3x16CH LoRa, 2G/3G/4G backhaul	863-874.4MHz
PDTIOT-MSS05	Wirnet iBTS - 1B4LOC915-0W915-US	4x16CH LoRa, ETH backhaul only	902-928MHz
PDTIOT-MSS06	Wirnet iBTS - 1B4LOC915-1W915-US	4x16CH LoRa, 2G/3G/4G backhaul + ETH backhaul (Includes already ACCIOT-KAN05)	902-928MHz
PDTIOT-MSS07	Wirnet iBTS - 1B4LOC923-0W923-EU	4x16CH LoRa, ETH backhaul only	915-928MHz
PDTIOT-MSS08	Wirnet iBTS - 1B4LOC923-1W923-EU	4x16CH LoRa, 2G/3G/4G backhaul + ETH backhaul	915-928MHz
PDTIOT-MSS11	Wirnet iBTS - 3LOC923-0W923-EU	3x16CH LoRa, ETH backhaul only	915-928MHz
PDTIOT-MSS12	Wirnet iBTS - 3LOC923-1W923-EU	3x16CH LoRa LOC, 2G/3G/4G backhaul + ETH backhaul	915-928MHz
PDTIOT-MSS13	Wirnet iBTS - 1LOC923-0W923-EU	16CH LoRa, ETH backhaul only	915-928MHz
PDTIOT-MSS14	Wirnet iBTS - 1LOC923-1W923-EU	16CH LoRa, 2G/3G/4G backhaul + ETH backhaul	915-928MHz
PDTIOT-MSS16	Wirnet iBTS - 1LOC923-1W923-AS	16CH LoRa, 2G/3G/4G backhaul + ETH backhaul	915-928MHz
PDTIOT-MSS17	Wirnet iBTS - 3LOC923-1W923-AS	3x16CH LoRa, 2G/3G/4G backhaul + ETH backhaul	915-928MHz

868 Accessory Ordering References (Wirnet™ iBTS Full)

POWER SUPPLY			
Reference	Description	Power Supply	ISM Frequencies
KLK02898	Power Supply	40W - DC/DC CONVERTER - 48VDC Input	16 CH only
KLK02882	Power Supply	60W - DC/DC CONVERTER 48VDC input	
POE INJECTOR			
Reference	Description	POE Injector	Recommendation
KLK02681	POE Injector	PoE Injector 30 W indoor - AC Input - EU	16 CH only
KLK02855	POE Injector	PoE Injector 30 W indoor - 48VDC Input	16 CH only
KLK02744	POE Injector	PoE Injector 60W EU Indoor	
EXTERNAL ANTENNA (optional)			
Reference	Description	Antenna	Recommendation
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			
Reference	Description	Filter	Recommendation
KLK02523	Cavity filter 865-867 MHz	India	
KLK02915	Cavity filter 867.5 MHz	865-870MHz - EU coexistence LTE800, RGSM	
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			
Reference	Description	Surge Protection	Recommendation
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			
Reference	Description	Debug Probe	Recommendation
ACCWM2-SDE00	Debug Probe	Wirnet iBTS / Wirma Debug Probe	

915 Accessory Ordering References (Wirnet™ iBTS Full)

POWER SUPP+C61:C86LY		Description	Recommendation
KLK02898	Power Supply	40W - DC/DC CONVERTER - 48VDC Input	16 CH only
KLK02882	Power Supply	60W - DC/DC CONVERTER 48VDC input	
POE INJECTOR		Description	Recommendation
KLK02681	POE Injector	PoE Injector 30 W indoor - AC Input - EU	16 CH only
KLK02766	POE Injector	PoE Injector 60W US -Indoor	
EXTERNAL ANTENNA (optional)			
ACCOT-KAN02	Antenna + 1m cable + support included	Antenna kit Omni 915/923 MHz 6 dBi	
ACCOT-KAN03	Antenna + 1m cable + support included	Antenna kit Omni 915/923 Mhz 3 dBi	
ACCOT-KAN05	Antenna WAN + 5m cable + support included	Kit WAN 700-2700 MHz 5dBi - 5m - N Male	
ACCOT-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	
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
(Outdoor) CAVITY FILTER			
KLK02973	Cavity filter 902-928MHz	USA, Canada, Mexico	
DEBUG			
ACCWM2-SDE00	Debug Probe	Wirnet iBTS / Wirma Debug Probe	

923 Accessory Ordering References (Wirnet™ iBTS Full)

POWER SUPPLY		Description	Recommendation
KLK02898	Power Supply	40W - DC/DC CONVERTER - 48VDC Input	16 CH only
KLK02882	Power Supply	60W - DC/DC CONVERTER 48VDC input	
POE INJECTOR		Description	Recommendation
KLK02681	POE Injector	PoE Injector 30 W indoor - AC Input - EU	16 CH only
KLK02855	POE Injector	PoE Injector 30 W indoor - 48VDC Input	16 CH only
KLK02744	POE Injector	PoE Injector 60W EU Indoor	
EXTERNAL ANTENNA (optional)			
ACCOT-KAN02	Antenna + 1m cable + support included	Antenna kit Omni 915/923 MHz 6 dBi	
ACCOT-KAN03	Antenna + 1m cable + support included	Antenna kit Omni 915/923 Mhz 3 dBi	
ACCOT-KAN05	Antenna WAN + 5m cable + support included	Kit WAN 700-2700 MHz 5dBi - 5m - N Male	
ACCOT-KAN06	Product Subpart	Connectivity kit for antenna diversity (Antenna not included)	
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
(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	
KLK02906	Cavity filter 915-920 MHz	Philippines, Israel, Cuba	
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 64 Highway - Ordering references

Product Ordering References

Reference	Designation	Description	ISM Frequencies
PDTIOT-MSS20	Wirnet iBTS 64 HIGHWAY 0WAN SIMPLE DUPLEXOR	64CH LoRa, ETH backhaul only	902-928MHz
PDTIOT-MSS21	Wirnet iBTS 64 HIGHWAY 0WAN DOUBLE DUPLEXOR	64CH LoRa, ETH backhaul only	902-928MHz
PDTIOT-MSS22	Wirnet iBTS 64 HIGHWAY 1WAN SIMPLE DUPLEXOR	64CH LoRa, 2G/3G/4G backhaul + ETH backhaul	902-928MHz
PDTIOT-MSS23	Wirnet iBTS 64 HIGHWAY 1WAN DOUBLE DUPLEXOR	64CH LoRa, 2G/3G/4G backhaul + ETH backhaul	902-928MHz

915 Accessory Ordering References (Wirnet™ iBTS 64 Highway)

POWER SUPPLY		Description	Recommendation
KLK02882	Power Supply	60W - DC/DC CONVERTER 48VDC input	
EXTERNAL ANTENNA (optional)		Description	
ACCIOT-KAN02	Antenna	Antenna kit Omni 915/923 MHz 6 dBi	
ACCIOT-KAN03	Antenna	Antenna kit Omni 915/923 MHz 3 dBi	
ACCIOT-KAN05	Antenna	Kit WAN 700-2700 MHz 5dBi - 5m - N Male	
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	
(Outdoor) CAVITY FILTER			
KLK02973	Cavity filter 902-928MHz	USA, Canada, Mexico	
DEBUG			
ACCWM2-SDE00	Debug Probe	Wirnet iBTS / Wirma Debug Probe	