

# Wirnet™ iBTS 64 Highway

## LoRaWAN® Outdoor Gateway for the Internet of Things



Specially designed for the North American market, the “Wirnet™ iBTS 64 Highway” provides the highest capacity of the Wirnet™ iBTS family allowing connectivity to the maximum number of LoRa sensors in your smart city, smart building or other smart project with outstanding 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 (IP66),
- Supported unlicensed bands : ISM 915 band: 902-915 MHz (Rx), 923-928 MHz (Tx)
- Supported LoRaWAN® regional parameters: US902-928,
- Full-Duplex Carrier-Grade LoRaWAN Gateway:
  - 64ch RX (125 kHz, multi Spreading Factor) + 8ch RX (500kHz, mono Spreading Factor) to get 72ch RX + 4ch TX (without antenna diversity)
  - (32ch + 32ch) RX (125 kHz, multi Spreading Factor) + (4 ch + 4 ch) RX (500kHz, mono Spreading Factor) + up to (4ch + 4ch) TX (with antenna diversity)
- Backhaul connectivity: Cellular 2G/3G/4G evolutive to 5G (mini-PCIe module), Ethernet 10/100 Mbps (RJ45), dual WAN as an option
- **Geolocation ready:** Using the fine timestamps on ALL the 64 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 architectures

- SecureBoot (Signed firmware),
- SecureStorage (keys and certificates in secured area) using ProvenCore™ solution,
- Secured links and backhaul protection (OpenVPN/IP-sec),
- Reboot (watchdog) and recovery on 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

### A combination of performance, reliability and robustness

- Carrier grade with low heat dissipation (below 75°C in the casing) for a better robustness and reliability
- Internal cavity duplexer in the enclosure to reject interferences from adjacent bands by up to 130dB (<1GHz) and 100 dB (1to 3 GHz) and to get perfect simultaneity of Rx/Tx
- Rx Sensitivity: -137 dBm (SF10), (SF12 not allowed in the USA)
- Ultra-secure HW and SW architectures: Secure core and secure bootstrap for market-leading protection:
  - Signed firmware management
  - Local and remote access and management
  - Secured links management and secured backhaul
  - Secure reboot (watchdog) and recovery on previous config (or factory config if the boot issue is not fixed)
- Lightning protections and robustness of LoRa link
- Backup batteries to allow the clean shut down of applications in case of power cut
- Casing: Operating
  - IP66
  - Range -40°C +60°C,
  - Size : 280 x 250 x 120 mm
  - Weight : 9kg

### Technical Features

- Low energy consumption 30W
- Power: 11-56V (solar power possible 12 or 24V) or Power Over Ethernet (POE) with cable: 100m max
- Rx Sensitivity: -141 dBm (SF12),
- TX 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,

### 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:

All product specifications are subject to change without notice (V1.5)

### Software Features

- **Same FW than 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.



kerlink  
communication is everything

sales@kerlink.com  
+ 33 2 99 12 29 00  
1 rue Jacqueline Auriol  
35235 Thorigné-Fouillard  
France

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## LoRaWAN® Outdoor Gateway for the Internet of Things

### 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	