

# Wirnet™ iStation LoRaWAN® Outdoor Gateway for the Internet of Things



The Wirnet™ iStation is the ideal gateway to support your smart city, smart industry or any other smart project, combining simplicity of installation, unique superior coverage and operational excellence.



Smart Cities



Smart Industry



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.



All product specifications are subject to change without notice (V3.1)

## KEY FEATURES

- Outdoor LoRa® Gateway,
- Carrier grade casing (IP67) for industrial use,
- 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,
- 8ch RX (125 kHz, multi Spreading Factor) + 1ch RX (250kHz or 500kHz, mono Spreading Factor) + 1ch RX (FSK) to get 10ch RX + 1ch TX,
- Backhaul connectivity: 4G Worldwide module with 3G/2G fallback and Ethernet (RJ45),
- Powered by:
  - PoE (Injector, switch, ...), both Mode A and Mode B (802.3af specifications),
  - +/- 48VDC through RJ45 (isolated power),
- Highly secured device relying on a Trustzone firmware

## KEY DIFFERENTIATORS

### High performance, reliability & robustness

- Carrier grade design with excellent heat dissipation
- Semtech Reference Design v1.5 components.

### Security 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).

## EASY DEPLOYMENT

- No need to open the casing during installation (waterproof connectors for RJ45, SIM card...),
- Easy installation mounting kit,
- Fully integrated and internal antennas GPS, 4G, LoRa (peak gain=2,6dBi) : no external antenna installation required (external LoRa antenna 3dBi or 6dBi possible as an option),
- Easy access to connectivity:
  - Ethernet 10/100 Mbps (RJ45),
  - SIM card (mini-SIM format),
  - Two LEDs controlled by SW (programmable):
    - 1 x green LED for power,
    - 1 x red LED for system status (update, boot behavior, LoRa status, backhaul...),
- USB (Type C) connector for debug probe,
- Multifunction button for On/Off/Reset/Factory reset,
- Simple and convenient configuration, management, control and update using the Kerlink Wanesy™ Management Center (Alarm notifications, firmware upgrade, platform statistics, RF statistics, RF spectrum analyzer...),
- Remotely configurable, manageable, via intuitive Web GUI,
- Remote access via SSH.

## TECHNICAL FEATURES

- Sniffer for LBT (Listen Before Talk),
- Built-in high rejection SAW filters,
- Rx Sensitivity: -141 dBm (SF12),
- Conducted TX Power: configurable from 5dBm to 27 dBm,
- Range -40°C +60°C,
- Humidity: 95%,
- Size : 265 x 165 x 100 mm,
- Weight : 1,4kg (mounting kit included),
- Spectrum analysis compliant,
- Capacitor for clean shut down of applications in case of power failure,
- Casing: IP67 Alu (Back), Polycarbonate (Front), Inox (mounting kit),
- Surge protection of the RF LoRa link (option),
- CPU: ARM Cortex A9,
- DDRAM 256MB,
- 8GB eMMC (6GB available for user),

## 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 3.1 (dunfell) LTS and Kernel 5.4 LTS,
  - Native Language Support: Python3.8, C/C++ and Shell,
  - Included packages: SQLite (Database), Connman/Ofono, NTPd, lighttpd.

## ADDED-VALUE SERVICES FOR ALL GATEWAYS

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

### More options :

- Maintain offer : Priority support, Access to Wanery 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



## CERTIFICATIONS

| 868    | 915           | 923  |
|--------|---------------|--|
| Europe | USA<br>Canada | Australia<br>New-Zealand<br>Singapore<br>Japan |

Many other countries already planned,  
(additional information on demand)

## Wirnet™ iStation - Ordering references

### Product Ordering References

| REFERENCE    | DESIGNATION             | DESCRIPTION                                | ISM FREQUENCIES |
|--------------|-------------------------|--|-----------------|
| PDTIOT-ISS04 | Wirnet iStation 868 MHz | 8CH LoRa, 2G/3G/4G backhaul + ETH backhaul | 863-874.4MHz    |
| PDTIOT-ISS05 | Wirnet iStation 915 MHz | 8CH LoRa, 2G/3G/4G backhaul + ETH backhaul | 902-928MHz      |
| PDTIOT-ISS06 | Wirnet iStation 923 MHz | 8CH LoRa, 2G/3G/4G backhaul + ETH backhaul | 915-928MHz      |

### Common accessories for outdoor installation

| SPARES      |                             |   |
|-------------|-----------------------------|---|
| KLK03524    | Self-amalgamating tape - 3m | Mounting accessories for outdoor installation                   |
| KLK03540    | Stainless Steel Hose clamp  | Mounting accessories for outdoor installation                   |
| CCIOT-POW01 | DC/DC converter             | DC/DC converter with USB-C output for solar panels installation |

## 868 Accessory Ordering References

| 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          |                |
| 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)

|              |         |                                       |  |
|--------------|---------|---------------------------------------|--|
| KLK03198     | Antenna | Antenna Omnidir 868Mhz 3 dBi - N male |  |
| ACCIOT-KAN01 | Antenna | Antenna kit Omni 868 MHz 6 dBi        |  |

### (Outdoor) CAVITY FILTER

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

### 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 |
| KLK02900 | Surge Protection for Lora link - Outdoor | RF coaxial Surge protection - Outdoor | Recommended |

### DEBUG

|              |             |                       |  |
|--------------|-------------|-----------------------|--|
| ACCIOT-SDE01 | Debug Probe | Universal Debug Probe |  |
|--------------|-------------|-----------------------|--|

## 915 Accessory Ordering References

| 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) |                                       |   |  |
|-----------------------------|---------------------------------------|---|--|
| KLK03199                    | Antenna                               | Antenna Omnidir 915/923Mhz 3 dBi - N male |  |
| ACCIOT-KAN02                | Antenna                               | Antenna kit Omni 915/923 MHz 6 dBi        |  |
| ACCIOT-KAN03                | Antenna + 1m cable + support included | Antenna kit Omni 915/923 Mhz 3 dBi        |  |

| 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 |
| KLK02900         | Surge Protection for Lora link - Outdoor | RF coaxial Surge protection - Outdoor | Recommended |

| (Outdoor) CAVITY FILTER |                                     |                     |                     |
|-------------------------|-------------------------------------|---------------------|---------------------|
| KLK02973                | Cavity filter 902-928MHz            | USA, Canada, Mexico |                     |
| KLK02909_01             | CAVITY FILTER 920-928 MHz - OUTDOOR | USA, Canada, Mexico | Former ACCIOT-CAV03 |

| DEBUG        |             |                       |  |
|--------------|-------------|-----------------------|--|
| ACCIOT-SDE01 | Debug Probe | Universal Debug Probe |  |

## 923 Accessory Ordering References

| PoE INJECTOR | Description             | Recommendation                                       |
|--------------|-------------------------|--|
| 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 Australia (IEC-320-C13)    |
| KLK03596     | POE Injector            | PoE Injector - 30 W Outdoor - AC Input               |

## EXTERNAL ANTENNA (optional)

|              |                                       |   |  |
|--------------|---------------------------------------|---|--|
| KLK03199     | Antenna                               | Antenna Omnidir 915/923Mhz 3 dBi - N male |  |
| ACCIOT-KAN02 | Antenna                               | Antenna kit Omni 915/923 MHz 6 dBi        |  |
| ACCIOT-KAN03 | Antenna + 1m cable + support included | Antenna kit Omni 915/923 Mhz 3 dBi        |  |

## 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 |
| 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          |  |
| KLK02523    | Cavity filter 920-925 MHz           | India, Irak, Jordania   |  |
| KLK02905    | Cavity filter 918-923 MHz           | Indonesia Malaysia, Vietnam, Mynanmar                           |  |
| KLK02906    | Cavity filter 915-920 MHz           | Philippines, Israel, Cuba                                       |  |
| KLK03306_02 | Cavity filter 915-928 MHz           | APAC, LATAM   |  |
| KLK02909_01 | CAVITY FILTER 920-928 MHz - OUTDOOR | New-Zealand, Japan, Costa Rica, Venezuela (former ACCIOT-CAV03) |  |

## DEBUG

|              |             |                       |  |
|--------------|-------------|-----------------------|--|
| ACCIOT-SDE01 | Debug Probe | Universal Debug Probe |  |
|--------------|-------------|-----------------------|--|