

Wirnet Station 868



LoRa gateway for IoT chain

- 868 MHz ISM band LongRange™ bidirectional communications capabilities
 - Embedded, remote and open low power communication station
 - Open development framework based on standard Linux OS
 - WAN connectivity over GPRS/EDGE/3G or Ethernet

1. Hardware Key Features

1.1 System

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|---|--|---|
| CPU: <ul style="list-style-type: none"> • Based on ARM 926EJS core processor • Up to 230 MIPS • Real-time clock saved by battery • Hardware watchdog • Optimised power consumption management | Volatile memory: <ul style="list-style-type: none"> • Low power DDRAM 128 MB • 10 MB used for system firmware | Non-volatile memory: <ul style="list-style-type: none"> • 128 MB NAND flash (40MB used for system firmware and autorecovery mechanism) • 8 GB eMMC |
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1.2 User interfaces

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| Internal LEDs: <ul style="list-style-type: none"> • Operational status : power, GSM signal strength level, WAN connectivity indicator | USB host interface allowing : <ul style="list-style-type: none"> • Local software upgrade with simple USB key • USB/NET local configuration/maintenance access |
| Internal push buttons: <ul style="list-style-type: none"> • Manual station reset • Manual test or installation procedure launch | |

1.3 Communication

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| LongRange: <ul style="list-style-type: none"> • Incorporate LoRa (TM) bidirectional communications technology (RX : 863- 873MHz , TX : 864-873MHz) • Sensitivity : up to -141 dBm • Tx conducted power from 0dBm to +28dBm • 49 LoRa Demodulators over 9 channels • More than 15km range in sub-urban situation | WWAN: <ul style="list-style-type: none"> • HSDPA/UMTS (900/2100MHz) : DL 3.6 Mbps / UL 384 Kbps (HSDPA), UL/DL 384Kbps (UMTS) • GPRS/EDGE (850/900/1800/1900MHz) : UL/DL 85.6Kbps (GPRS), UL/DL 236.8Kbps (EDGE) • IMEI inside • Internal antenna | Ethernet : <ul style="list-style-type: none"> • PowerOverEthernet IEEE 802.3af alternative B 10/100 Base T compliant |
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1.4 Positioning/Timing

- GPS:**
- Integrated GNSS high sensitivity GPS module
 - NMEA 2.0 compliant
 - Internal antenna

1.5 Sensors

- Embedded temperature sensor
- Door opening detection system

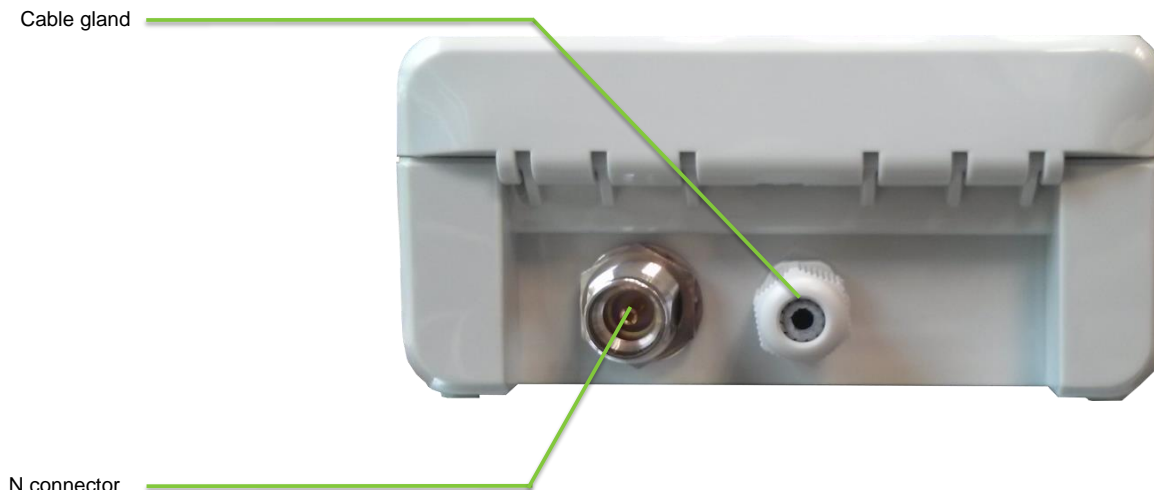
1.6 Power

- PowerOverEthernet supply : 48V class 0 (Max : 15Watts, Nominal : 3Watts (Lora Rx mode with GSM network attachment))
- DC power supply (ex : solar panel use) : 11 to 30Volts
- Power control : ignition detection, software OFF switching
- Back-up battery (up to about 1 minute allowing safe powerdown)

1.7 Mechanical

- Polycarbonate enclosure - Dimensions : 315 x 170 x 215 (including mounting kit) - Weight: about 2 kg (including mounting kit)

Connectors



1.8 Mounting

The provided mouting kit allows three different mounting options:

- Wall mounting by screwing
- Pole mounting by U-bolt (max diameter : 60mm)
- Metallic strapping mounting (tube, pipe, flue...)

The provided mouting kit can be splitted to install apart the antenna.

1.9 Environmental

- Full operating range: -20°C to +60°C
- Humidity: 95%, non condensing (protective vent)
- MTBF: 20 years (according to MIL-HDBK-217F) - *non contractual*

- Ingress protection: IP67
- Impact resistance: IK08
- UV resistance: UL508

1.10 Certification

- R&TTE 1999/5/EC Directive
- Electromagnetic compatibility (article 3.1-b of the R&TTE directive)

EN 301 489-1	issue 1.9.2
EN 301 489-3	issue 1.4.1
EN 301 489-7	issue 1.3.1
EN 301 489-19	issue 1.2.1

- Efficient use of the radio frequency spectrum (article 3.2 of the R&TTE directive)

EN 301 511	issue 9.0.2
EN 301 908	issue 6.2.1
EN 300 440-1	issue 1.5.1
EN 300 440-2	issue 1.3.1
EN 300 220-1	issue 2.4.1
EN 300 220-2	issue 2.4.1

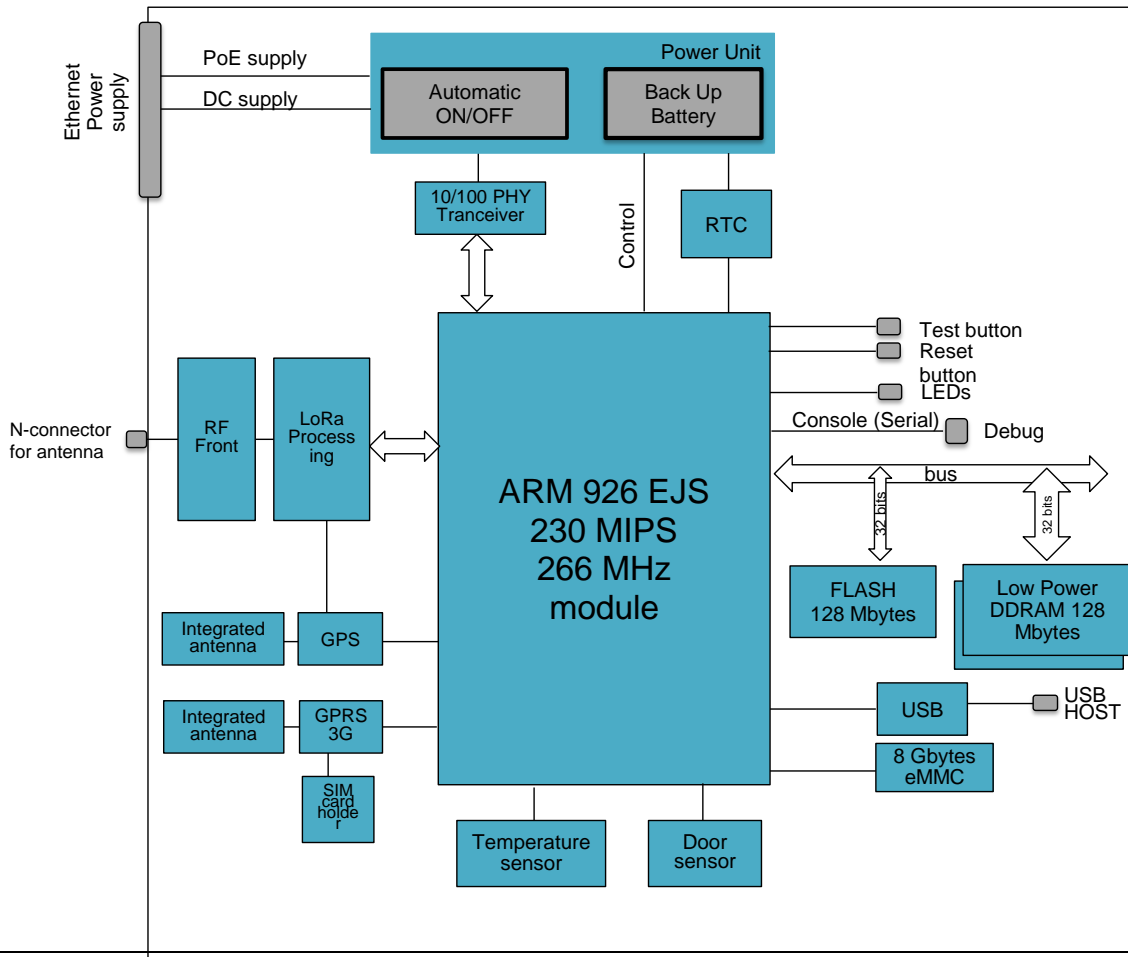
- Safety (article 3.1-a of the R&TTE directive)

EN 60 950-1	(ed. 2006 /A11: 2009/A1: 2010/A12:2011)
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- Magnetic field exposure

EN 50385	(ed. 2002)
EN 62479	(ed. 2010)

1.11 Hardware block diagram



2. Software key features

2.1 Operating system

- Standard Long Term Support Linux version 3.10
- File system YAFFS2 (NAND) and EXT4 (eMMC)
- Support of all GNU/Linux tools (cross-compiled for ARM)
- POSIX1 file system
- TCP/IP BSD4.4 socket on network bearer

2.2 Software packages included (non-exhaustive)

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|---|---|
| <ul style="list-style-type: none"> • PYTHON • SQLITE <p>Optional</p> <ul style="list-style-type: none"> • JAVA ORACLE OJEC VM (J2M2 compliant based on CDC 1.1.2 profile) | <p>Networking:</p> <ul style="list-style-type: none"> • DHCP client and server • FTP server • SSH server • NFS client • Firewalling (iptables) and IP routing (layer 3) • HTTP server • TFTP server • L2TP tunneling |
|---|---|

2.3 Kerlink M2M services interfaces

- Simple and reduced interface using XML format over TCP/IP socket providing value added services based on action programming
- Mobile SMS management
- System alarm (memory and CPU usage, hardware failure)
- Internal statistic delivery
- Automatic or manual bearer selection
- Power control management

- Optional**
- Wanesty ready to remote supervision, maintenance and HQ data transfer.

2.4 Software development tools

- C/C++ Linux cross compilation toolchain based on GNU tools (GCC 4.5.2, Glibc 2.13)
- User manual and Kerlink M2M services description
- Complete C-source code set of example for remote and embedded applications
- On-line wiki

Optional

- Debug probe

3. Optional accessories

- **Antennas** : various antennas can be proposed to adapt to environment (omnidirectionnal, directionnal, high gain).

4. In option : Wanesy Ready

Wanesy is a M2M platform provided by Kerlink to :

- interconnect devices with customer ERP
- supervise remote device (status, alarm, log...)
- maintain (remote maintenance, update and control)

5. Contacts : For more information please contact:



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