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

**CPU:**
- Based on ARM 926EJS core processor
- Up to 230 MIPS
- Real-time clock saved by battery
- Hardware watchdog
- Optimised power consumption management

**Volatile memory:**
- Low power DDRAM 128 MB
- 10 MB used for system firmware

**Non-volatile memory:**
- 128 MB NAND flash (40MB used for system firmware and autorecovery mechanism)
- 8 GB eMMC

#### 1.2 User interfaces

**Internal LEDs:**
- Operational status: power, GSM signal strength level, WAN connectivity indicator

**Internal push buttons:**
- Manual station reset
- Manual test or installation procedure launch

**USB host interface allowing:**
- Local software upgrade with simple USB key
- USB/NET local configuration/maintenance access

#### 1.3 Communication

**LongRange:**
- 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:**
- 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:**
- PowerOverEthernet IEEE 802.3af alternative B 10/100 BaseT compliant

#### 1.4 Positionning/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)

All product specifications are subject to change without notice

12/01/2016
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 mounting 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 mounting 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)

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<th>Standard</th>
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<td>EN 301 489-1</td>
<td>1.9.2</td>
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<td>EN 301 489-19</td>
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- Efficient use of the radio frequency spectrum (article 3.2 of the R&TTE directive)

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<td>EN 301 511</td>
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<td>EN 300 220-1</td>
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- Safety (article 3.1-a of the R&TTE directive)

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- Magnetic field exposure

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<tr>
<td>EN 50385</td>
<td>(ed. 2002)</td>
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<tr>
<td>EN 62479</td>
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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)
- POSIX file system
- TCP/IP BSD socket on network bearer

2.2 Software packages included (non-exhaustive)

- PYTHON
- SQLITE

**Optional**

- JAVA ORACLE OJEC VM (J2M2 compliant based on CDC 1.1.2 profile)

 Networking:

- DHCP client and server
- FTP server
- SSH server
- NFS client
- Firewalls (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**

- Wanesy ready to remote supervision, maintenance and HQ data transfer.

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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 (omnidirectional, directional, 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)

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