

WSN COORDINATOR - IEEE 802.15.4 & ETHERNET & GPS / OUTDOOR & RUGGED VERSION

//APPLICATIONS



FEATURED VIDEO



BeanGateway® (Outdoor Version) main presentation video

TECHNICAL NOTE



TN_RF_009 – «BeanGateway® management on LAN infrastructure»

USER MANUAL



[BeanGateway® user manual](#)

APPLICATIONS

- Outdoor isolated sites (solar & wind energy farm, water/gas pipeline, mountains, water power plant ...)
- Wsn in harsh industrial environment
- Embedded Measurement
- Geotagging of alarm events on a wireless sensor network (ieee 802.15.4)

HOW DOES IT WORK ?



// MAIN FEATURES



Wireless technology IEEE 802.15.4 coming with antenna diversity



Advanced UPS (Uninterruptible power supply) with integrated rechargeable Lithium battery



GPS receiver dedicated to Geotagging



Ethernet/LAN interface with a server

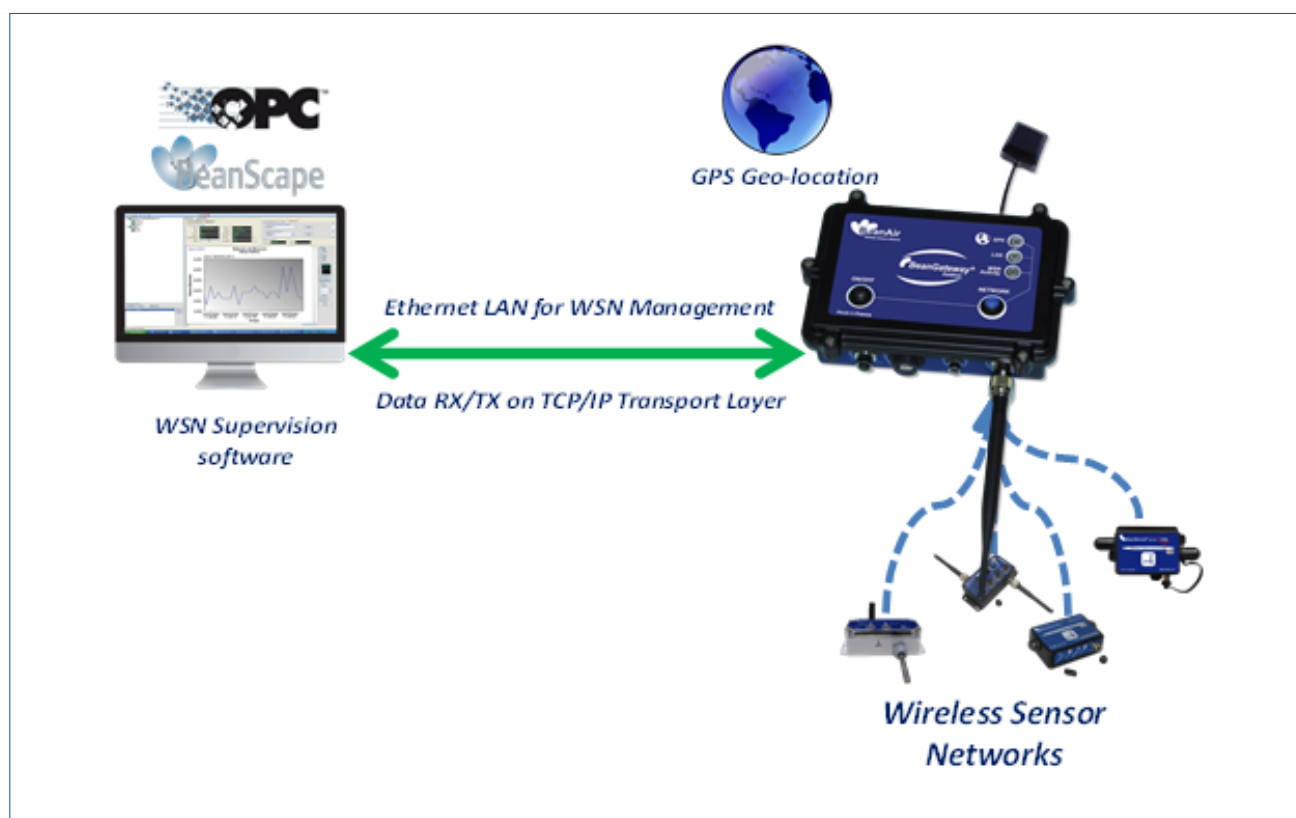


Watertight (IP67) & Robust Aluminum Enclosure

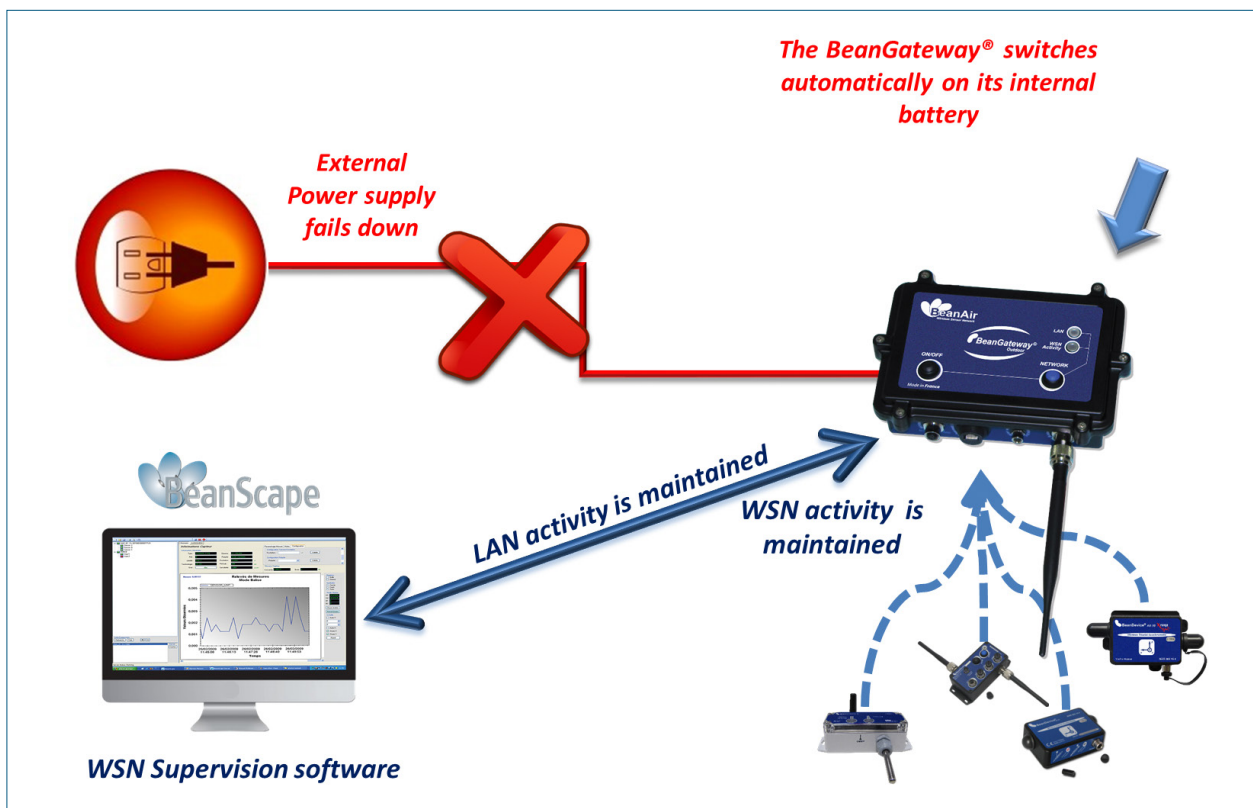
//A MULTI-PROTOCOL WSN COORDINATOR

The **BeanGateway® GPS** is used to build and manage **Beanair®** wireless sensor network. It can manage queues for every network device (**BeanDevice®**). As a gateway, it controls the external access to the network through a highly secured authentication procedure. It supports the conversion of data exchanged, compression and IP connectivity with the network thereby reducing the intelligence required in these platforms, maintenance and therefore the associated cost.

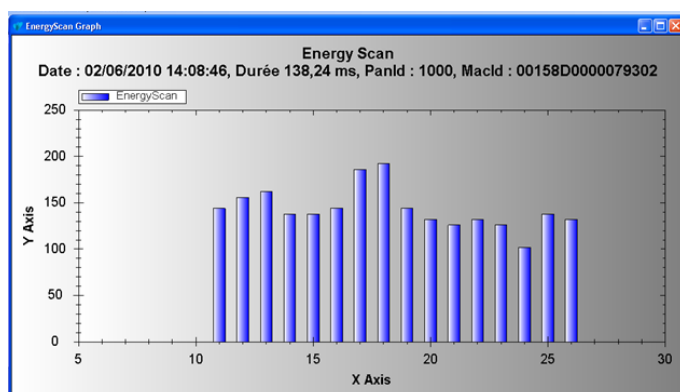
The **BeanGateway® GPS** is also equipped with various communication interfaces with the customers IT infrastructure (RS232, Ethernet - TCP / IP / UDP / DHCP / DNS). With a client application TCP / IP, it can easily connect to a local application server (via the Ethernet).


//ADVANCED UNINTERRUPTIBLE POWER SUPPLY (UPS)

The **BeanGateway® GPS** operates with an external power supply (DC 8-28V). An integrated rechargeable battery with a capacity of 950mAh is used as an UPS battery (uninterruptible power supply). The internal battery provides instantaneous protection from external power supply interruptions, the wireless sensor network activity & Ethernet LAN activity are conserved during this time (3h00 to 3h30 approximately). An internal buzzer emits a beep sound every 2 seconds in case the external power supply is disconnected.



//EMBEDDED WSN DIAGNOSTIC TOOL



The BeanGateway® GPS provides a WSN diagnostic tool useful for resolving some common networking troubleshooting :

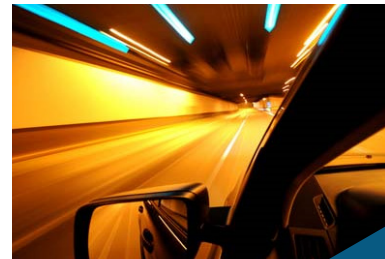
- Energy Scan for choosing the more appropriate RF Channel
- BeanDevice® PER (Packet Error Rate) calculation
- LQI (Link Quality Indicator) between the Bean Gateway® Ethernet and the BeanDevice®

The Energy Scan allows the user to know the network quality on each Radio channel. This operation allows the user to choose the appropriate RF channel on a site where the WSN is deployed.

//APPLICATIONS

MODELING THE HANDLING OF A VEHICLE

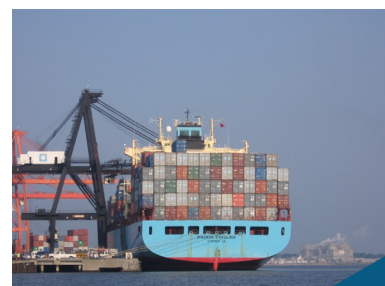
Through modeling the handling of a test vehicle, it can be equipped with wireless sensors (pressure, temperature, acceleration, inclination). The combination of wireless measurements with GPS geo-location can push the limits of modeling the behavior of the vehicle on a road.



REMOTE MONITORING OF CARGOES

The user can remotely monitor the status of his merchandise by instrumenting the cargo containers with wireless sensors. He can remotely track environmental parameters such as temperature, humidity or shock.

In case of exceeding a threshold alarm measurement (ex: increased temperature, shock detection ...), the merchandise is geo-located by GPS.



//GPS GEOTAGGING



(Source : Beanair – test bench on the « Plug & Drive » vehicle)

The **BeanGateway®** GPS integrates GPS function dedicated to test bench and telemetry applications on mobile equipment (train, car, ship).

With «**GPS Geotagging**» mode, a measure can be time-stamped, geo-located with precision and transmitted to the destination of **BeanScape®**.

Product reference	
BGTW-GPS-OUT	

Specifications	Wireless Sensor Network Coordinator	
Wireless Stack	IEEE 802.15.4	
WSN Topology	IEEE 802.15.4	Peer-to-peer/ Star
Antenna Diversity	Self-managed antenna diversity function	
Data rate	250 Kbits/s	
RF Characteristics	ISM 2.4GHz – 16 Channels	
RF Transmit power	Configurable transmit power: +0,5 dBm to +20 dBm	
Receiver sensitivity	-95,5 dBm to -101 dBm	
Encryption	AES 128 bits (integrated AES coprocessor)	
Maximum Radio Range	1 km (L.O.S.)	
WSN Diagnostic tool	<ul style="list-style-type: none"> · Energy Scan for choosing a suitable RF Channel · BeanDevice® PER (Packet Error Rate) calculation · LQI (Link Quality Indicator) between the BeanGateway® GSM/GPRS and the BeanDevice® · RF channels Blacklist 	

Specifications	Ethernet/LAN Network
Network/Transport Protocol	Client TCP/IP, UDP, DNS, DHCP
Data Link Protocol	Ethernet / Fast-Ethernet with auto-uplink (MDI/MDI-X auto) - IEEE 802.3x
IP Addressing	Dynamic (DHCP) or static
IP configuration	LAN parameters (DNS, DHCP, Keep Alive...) are configurable from the BeanScape® (RS232 Interface or UDP/Ethernet Interface).

Specifications	Physical & Environmental
Dimensions (L x l x h)	202 mm x142 mm x 55 mm
Enclosure/Finish	<ul style="list-style-type: none"> · Aluminium alloy ADC12 black finish · Wall mounting holes (outside the sealing area)
IP Ratings	IP67
Weight	1220g
Connectors	<ul style="list-style-type: none"> · Power supply connector: M8-3P female socket, Ratings IP67, Contact brass with gold plated · Ethernet connector : RJ45 Female, Ratings IP67, Contact copper alloy with gold plated · Antenna connector: N-Type female, Ratings IP67 · ON/OFF push button : Latching push-button, Ratings IP67 · Network context push button: momentary push-button, Ratings IP67
Operating temperature	-20 °C to +75 °C – with Integrated internal temperature sensor (resolution 0.125°C)
Norms	CE Labeling directive R&TTE (Radio) , ETSI EN 300 328 , ROHS - Directive 2002/95/EC, FCC Part 15

Specifications	GPS Features
GPS Technology	SiRF Star 3 SBAS (WAAS & EGNOS) supported
Maximum refresh rate	1s
Frequency band	1575,42 MHz – 20 Channels
Sensitivity	High sensitivity for indoor use: -159 dBm (with an active antenna)
GPS Accuracy	+/- 2,5 meters
Startup time	Cold Start : < 35 seconds ; Warm Start : < 3 seconds
Amplified GPS Antenna	<div> Antenne GPS active +28,5 dB V.S.W.R : 1.5:1 Noise Figure : 1.5 dB Cable Length : 3m Center frequency: 1575.42MHz ±1.023MHz Watertight : IP67 Polarization : RHCP Magnetic Mount </div> 
Operating Current	75 mA

Specifications	Power
Power Consumption	250 mA to 300 mA during wireless RX/TX and Ethernet activated
External power supply	+9V to +28 V , integrated Lithium-Ion battery charger with high-precision battery monitoring
Integrated Lithium-Ion Battery	Lithium-Ion rechargeable battery 950 mAh (reference BAT0.95DMG) In case of external power supply failure, the BeanGateway® can switch on the internal battery.

Specifications	Accessories
2.4 GHz Antennas	Two antennas : · High gain antenna 5,5 dBi · V.S.W.R : 1.5 :1 · Connector : N-Type (Watertight)
Ethernet Cable	· RJ45 Male waterproof connector (casing side only) · Cable length: 3 meters
Wall plug-in power supply	Wall plug-in, Switchmode power Supply 12V @ 1,25A
Connectors cap	M8-3P cap

Specifications	Options
Embedded File System on Micro-SD®	All the User data are stored on an external memory (Micro-SD® technology): · Measurement storage for Wireless Sensor Network (network configuration, measurement, alarms notifications ...) ; · Maximum storage capacity (2Go) · CSV files management (for exporting data on Excel® and Access®)

Product specifications are subject to change without notice. Contact Beanair for latest specifications.

//CONTACT US

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