

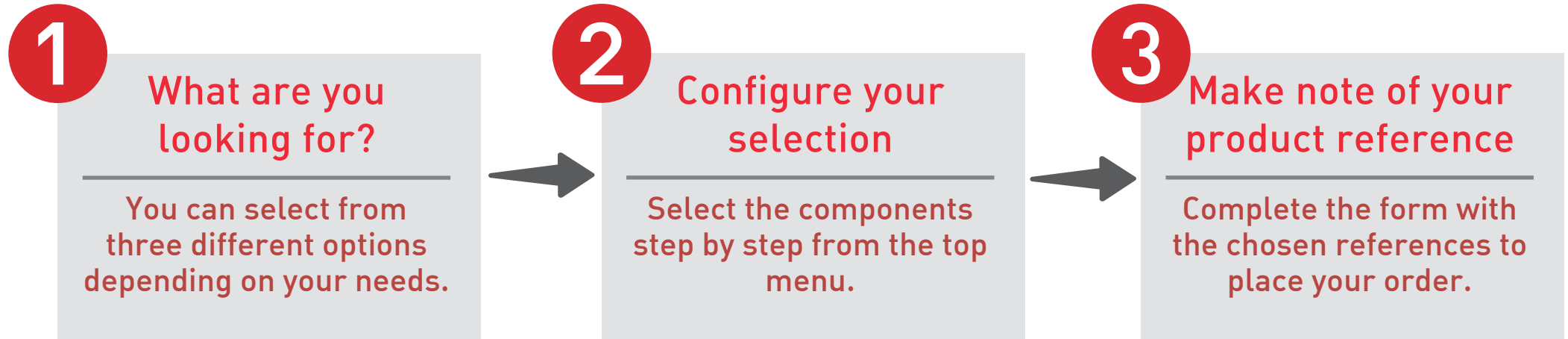
product

catalogue


2016




FOLLOW THESE STEPS TO FIND YOUR LIBELIUM SOLUTION




Try our technology for IoT
Out-of-the-Box IoT Vertical Kits



Ready to install solution
Waspnote Plug & Sense!



Research and development
Waspnote OEM



1° Customize your device
Sensors + Connectivity
+ Power Options

+




2° Decide the way to access the data
Extracting the Data


+




3° Choose Support & Training options
Support Section



Make note
Product reference

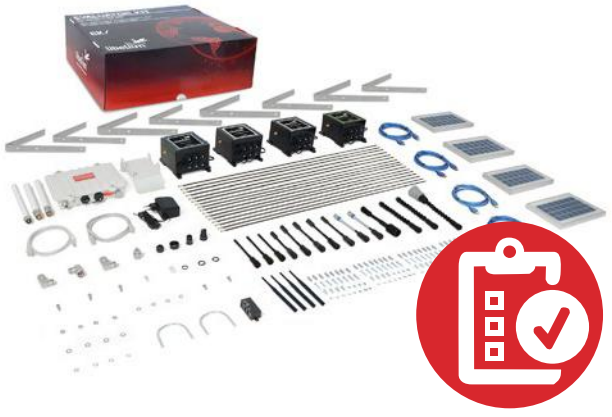



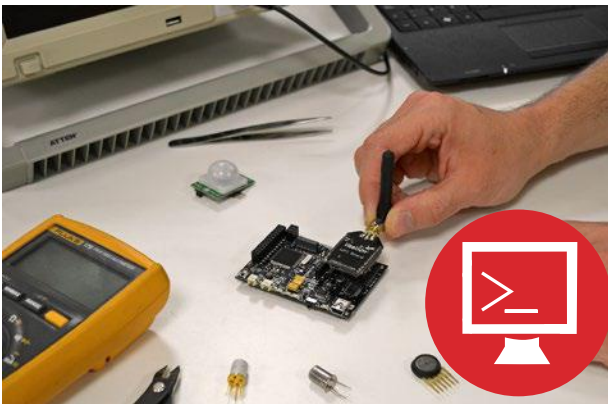






Complete the
Order Form



Send to your
Sales Agent

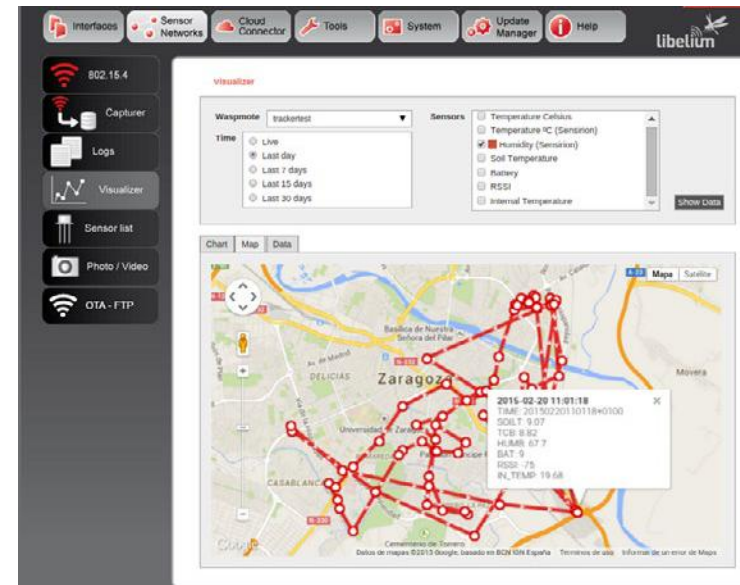
WHAT ARE YOU LOOKING FOR?

You are	<h3>Testing IoT Market!</h3>  	<h3>Looking for a ready to install solution</h3>  	<h3>Doing research and development</h3>  
You need to	<ul style="list-style-type: none"> • Decide quickly the components to test. • Use your time to check if technology meets your requirements, not programming. • Maximize your budget: test the market with the minimum risk. 	<ul style="list-style-type: none"> • Reduce your time to market. • Save in development costs. • Focus on the solution. 	<ul style="list-style-type: none"> • Get the maximum flexibility in programming. • Use your extra time to save on support options.
The best option	<h3>Out-of-the-Box IoT Vertical Kits</h3> <ul style="list-style-type: none"> • Out-of-the-Box working demos. • Data visualization tool. • Includes online consultancy bonus. 	<h3>Wasp mote Plug & Sense!</h3> <ul style="list-style-type: none"> • Encapsulated and robust solution ready to install outdoors. • Factory programmed and configured devices. • Customized online support. 	<h3>Wasp mote OEM</h3> <ul style="list-style-type: none"> • Select the components one by one to test at the laboratory. • Free support through our forums and documentation. • Join our Free Overview Webinars to get quick insights about our technology. 

Technology to get new customers

If you are exploring IoT possibilities with a pilot project, setting up a demo to engage with potential customers or just comparing technology options, time is the most important factor.

We have created five different IoT Vertical Kits addressing the most dynamic IoT verticals and one evaluator kit to ensure you get started in as fast as possible. The vertical kits are factory programmed with basic codes, include a visualization plugin in Meshlium¹ and 5 hours of technical consultancy so that you can have a working demo just by powering on the devices.



1.- Visualization plugin only available in IoT Vertical Kits.

We provide prices in USD to US customers. Please submit your RFQ, and we will provide you with the USD prices.

Intro

Configure your Hardware

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Smart Cities IoT Vertical Kit



Application examples:

Application	Description	Sensors
Noise Urban Maps	Sound monitoring in bar areas and centric zones in real time.	Microphone (dBA).
Smart Lighting	Intelligent and weather adaptive lighting in street lights.	Luminosity (luxes accuracy).
Waste Management	Detection of rubbish levels in containers to optimize the trash collection routes.	Ultrasound.
Air Quality	Control of the pollution levels.	CO ₂ , NO ₂ , CO, O ₃
Weather Control	Monitor atmospheric conditions.	Humidity, Luminosity (LDR), Temperature.

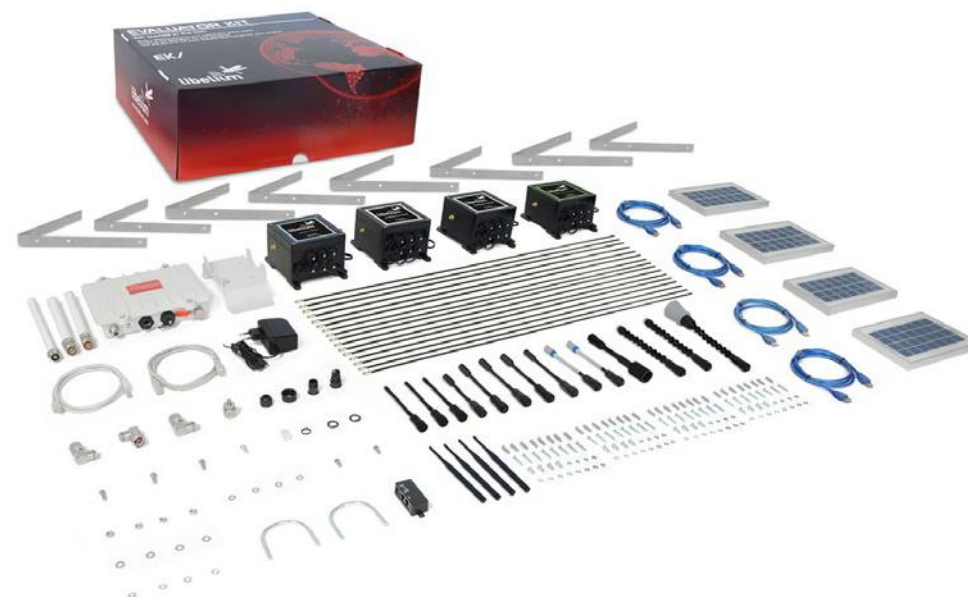
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List of items included in the Smart Cities IoT Vertical Kit:

Item	Ref.	Quantity
Plug & Sense! Smart Cities 802.15.4 -PRO 5dBi	SC-802	1
Plug & Sense! Ambient Control 802.15.4 -PRO 5dBi	AC-802	2
Plug & Sense! Smart Environment 802.15.4 -PRO 5dBi	EN-802	1
Microphone (dBA) Sensor Probe	9259-P	1
Ultrasound Sensor Probe	9246-P	1
Luminosity (LDR) Sensor Probe	9205-P	3
Temperature + Humidity (Sensirion) Sensor Probe	9247-P	2
Luminosity (luxes accuracy) Sensor Probe	9325-P	2
CO ₂ Sensor Probe	9230-P	1
CO Sensor Probe	9229-P	1
NO ₂ Sensor Probe	9238-PB	1
O ₃ Sensor Probe	9258-PB	1
Atmospheric pressure Sensor Probe	9250-PB	1
6600mAh rechargeable battery + external solar panel	6600-EXT	4
Meshlium 802.15.4-PRO-3G-AP	M802-3G	1
Technical consultancy 5 hours	TC-5	1
Plug & Sense! Programming Service	PROG	1
Meshlium visualization interface	MVIS	1



Ref / Total Price

SCIVK / 4.500 €

Includes Meshlium Sensor Visualizer interface – 100 times free access limit. After 100 log-ins a license fee can be acquired to keep on using it.
There is no SSH access.
We do not provide these codes, the nodes are already programmed in Libelium. Do not overwrite the code.

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Smart Parking IoT Vertical Kit



Application examples:

Application	Description	Sensors
Smart Parking	Detection of free parking spots.	Electromagnetic field sensor. It is designed to be installed on the surface of parking spaces and to detect the arrival and departure of vehicles with an electromagnetic field sensor. It includes a polyamide casing.

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List of items included in the Smart Parking IoT Vertical Kit:

Item	Quantity
Plug & Sense! Smart Parking node	10
Smart Parking Installation Tools	1
Smart Parking USB Programmer	1
Magnet for contactless reset	1

10 x



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Smart Agriculture IoT Vertical Kit



Application examples:

Application	Description	Sensors
Wine Quality Enhancing	Monitoring soil moisture in vineyards to control the amount of sugar in grapes and grapevine health.	Soil moisture, soil temperature, humidity, leaf wetness, atmospheric pressure.
Green Houses	Control micro-climate conditions to maximize the production of fruits and vegetables.	Soil moisture, soil temperature, humidity, leaf wetness, atmospheric pressure.
Golf Courses Irrigation	Selective irrigation in dry zones to reduce the water resources required in the green.	Soil moisture (3 levels of depth).
Compost	Control of humidity and temperature levels in alfalfa, hay, straw, etc. to prevent fungus and other microbial contaminants.	Humidity, soil moisture, soil temperature.

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List of items included in the Smart Agriculture IoT Vertical Kit:

Item	Ref.	Quantity
Plug & Sense! Smart Agriculture-PRO 802.15.4-PRO 5dBi	SAP-802	2
Plug & Sense! Smart Agriculture 802.15.4 -PRO 5dBi	SA-802	1
Temperature + Humidity (Sensirion) Sensor Probe	9247-P	3
Atmospheric pressure Sensor Probe	9250-P	1
Soil moisture 1,5 m Sensor Probe	9248-P	3
Soil moisture 4,5 m Sensor Probe	9324-P	3
Solar radiation Sensor Probe	9251-P	2
Soil/Water temperature (Pt-1000) Sensor Probe	9255-P	2
Leaf wetness Sensor Probe	9249-P	3
WS-3000 (anemometer+ wind vane + pluviometer)	9256-P	1
6600mAh rechargeable battery + external solar panel	6600-EXT	3
Meshlium 802.15.4-PRO-3G-AP	M802-3G	1
Technical consultancy 5 hrs	TC-5	1
Plug & Sense! Programming Service	PROG	1
Meshlium visualization interface	MVIS	1

Includes Meshlium Sensor Visualizer interface – 100 times free access limit. After 100 log-ins a license fee can be acquired to keep on using it.

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Smart Environment IoT Vertical Kit



Application examples:

Application	Description	Sensors
Forest Fire Detection	Monitoring of combustion gases and preemptive fire conditions to define alert zones.	CO, CO ₂ , temperature, humidity.
Air Pollution	Control of CO ₂ emissions, pollution from cars and toxic gases generated in factories or farms.	CO, CO ₂ .
Indoor Air Quality	Monitoring of gas levels and environmental conditions inside chemical plants to ensure workers and goods safety.	CO, CO ₂ , temperature, humidity.
Ozone Presence	Monitoring of ozone presence in the drying meat process in food factories.	O ₃ .

Intro

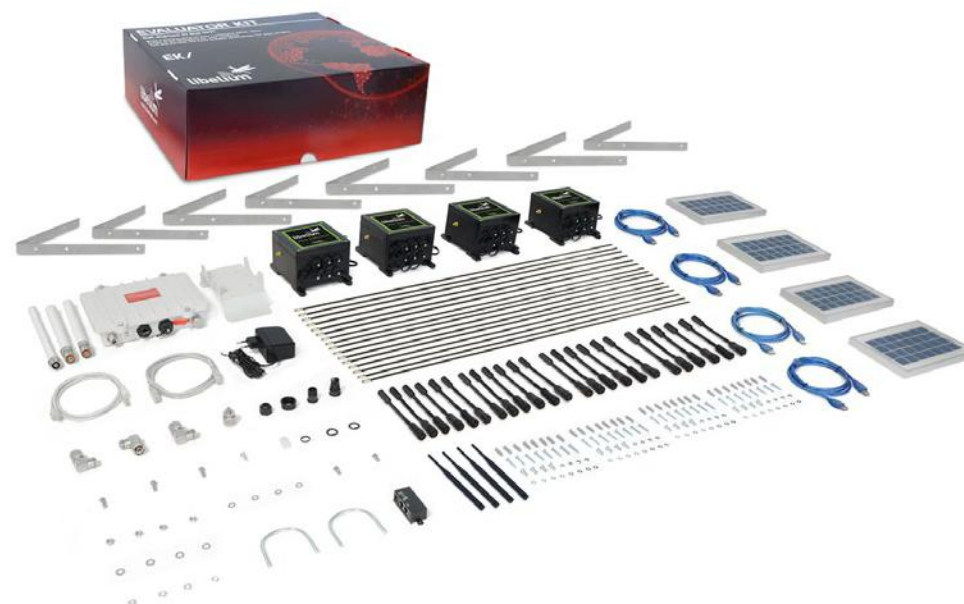
Configure your Hardware

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List of items included in the Smart Environment IoT Vertical Kit:

Item	Ref.	Quantity
Plug & Sense! Smart Environment 802.15.4 -PRO 5dBi	EN-802	4
Temperature Sensor Probe	9203-P	4
Humidity Sensor Probe	9204-P	4
CO ₂ Sensor Probe	9230-P	4
CO Sensor Probe	9229-P	4
NO ₂ Sensor Probe	9238-PB	4
O ₃ Sensor Probe	9258-PB	4
6600mAh rechargeable battery + external solar panel	6600-EXT	4
Meshlium 802.15.4-PRO-3G-AP	M802-3G	1
Technical consultancy 5 hrs	TC-5	1
P&S! Programming Service	PROG	1
Meshlium visualization interface	MVIS	1

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Smart Water IoT Vertical Kit



Application examples:

Application	Description	Sensors
Potable water monitoring	Monitor the quality of tap water in cities.	pH, ORP, Dissolved Oxygen (DO).
Chemical leakages	Detect leakages and wastes of factories in rivers.	Extreme pH values signal chemical spills, Dissolved Oxygen (DO).
Swimming pool remote measurement	Control remotely the swimming pool conditions.	pH, Oxidation Reduction Potential (ORP).
Pollution levels in the sea	Control real-time leakages and wastes in the sea.	Conductivity (Salinity), pH, Dissolved Oxygen (DO).

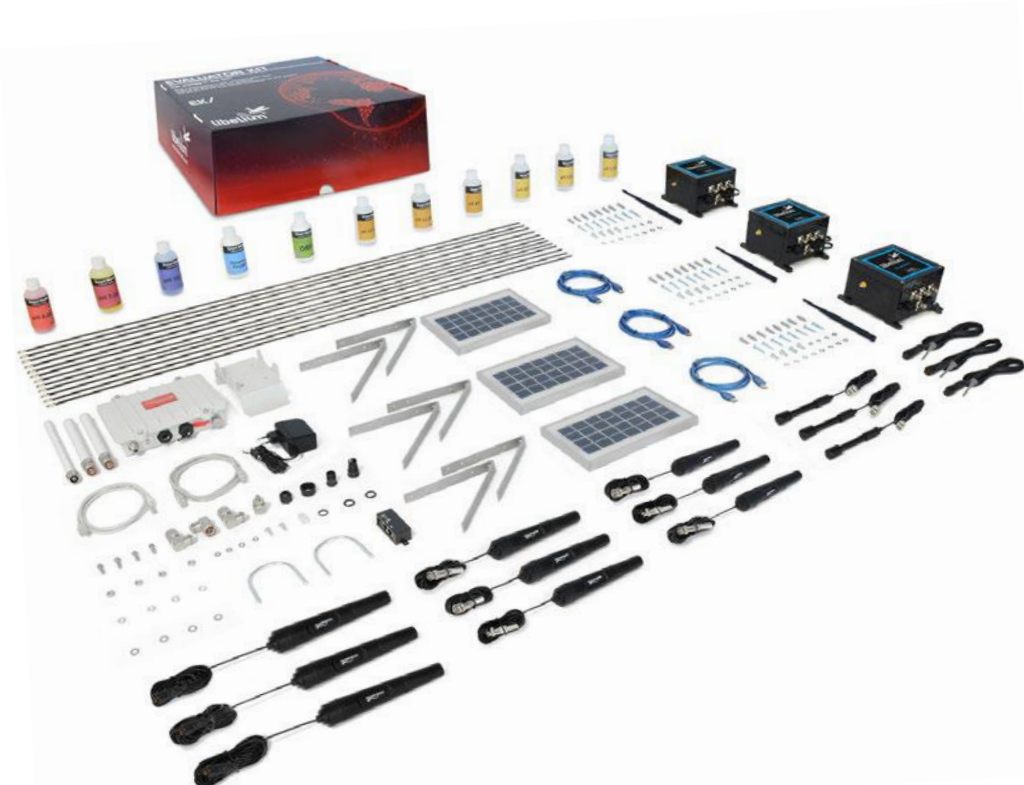
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List of items included in the Smart Water IoT Vertical Kit:

Item	Ref.	Quantity
Plug & Sense! Smart Water 802.15.4 -PRO 5dBi	SW-802	3
Conductivity Sensor Probe	9326-P	3
pH Sensor Probe	9328	3
Oxidation Reduction Potential Sensor Probe	9329	3
Conductivity Calibration Kit, K=0.1	9339	1
Conductivity Calibration Kit, K=1	9340	1
Conductivity Calibration Kit, K=10	9341	1
ORP Calibration Solution	9344	1
pH Calibration Kit	9343	1
Dissolved Oxygen Sensor Probe	9327	3
DO Calibration Kit	9342	1
6600mAh rechargeable battery + external solar panel	6600-EXT	3
Meshlium 802.15.4-PRO-3G-AP	M802-3G	1
Technical consultancy 5 hrs	TC-5	1
Plug & Sense! Programming Service	PROG	1
Meshlium visualization interface	MVIS	1



Includes Meshlium Sensor Visualizer interface – 100 times free access limit. After 100 log-ins a license fee can be acquired to keep on using it.
There is no SSH access.
We do not provide these codes, the nodes are already programmed in Libelium. Do not overwrite the code.

(*) Soil/Water temperature (Pt-1000) included in Plug & Sense! Smart Water.

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Air Quality Index IoT Vertical Kit



Application examples:

Application	Description	Sensors
Air Quality Index monitoring	Monitor the overall quality of the air with maximum accuracy and according to international standards.	Temperature, Humidity and Pressure, Carbon Monoxide (CO), Ozone (O ₃), Nitric Dioxide (NO ₂), Sulfur Dioxide (SO ₂), Particle Matter (PM1 / PM2.5 / PM10) - Dust
Ultraviolet radiation measurement	Control the UV radiation, which is dangerous for our skin. It also helps to adjust the O3 readings.	Ultraviolet

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List of items included in the Smart Water IoT Vertical Kit:

Item	Ref.	Quantity
P&S! SE-PRO 802.15.4-PRO 5dBi	SEP-802	1
P&S! SA-PRO 802.15.4-PRO 5dBi	SAP-802	1
Temperature, Humidity and Pressure	9370-P	1
Carbon Monoxide (CO) [Calibrated]	9371-P	1
Ozone (O ₃) [Calibrated]	9374-P	1
Nitric Dioxide (NO ₂) [Calibrated]	9376-P	1
Sulfur Dioxide (SO ₂) [Calibrated]	9377-P	1
Particle Matter (PM1 / PM2.5 / PM10) - Dust	9387-P	1
Ultraviolet	9257-P	1
6600mAh rechargeable battery + external solar panel	6600-EXT	2
Meshlium 802.15.4-PRO-3G-AP	M802-3G	1
Technical consultancy 5 hrs	TC-5	1
P&S! Programming Service	PROG	1
Meshlium visualization interface	MVIS	1



Includes Meshlium Sensor Visualizer interface – 100 times free access limit. After 100 log-ins a license fee can be acquired to keep on using it.
There is no SSH access.
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More and New kits available at The IoT Marketplace!

The IoT Marketplace

— Make it real —

Interested in complete IoT kits?

Check our out-of-the-box kits containing programmed sensor devices connected to the best Cloud applications for use in pilots or proof of concept projects in the minimum time to market.

Get fully integrated solutions from hardware sensors to cloud applications to speed up IoT adoption.

www.the-iot-marketplace.com

Intro

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Evaluator Kit

This kit is designed to compare different radio technologies or create customized demos. It contains the most demanded products in our catalogue, so that you do not need to spend lots of time configuring your order.

To ensure you start testing the products as soon as possible, we include 1 attendee place at Libelium training course where you will learn from installing the IDE to program Waspote (more info about training courses on section [Support](#)).

Finally, we also include a 3-hour package of online technical consultancy, to solve quickly any doubt you may have when getting your hands on Waspote. Both training courses and consultancy hours are given with Libelium R&D engineers.



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List of items included in the Evaluator Kit:

	Item	Pieces
Communication	Waspote 802.15.4 PRO SMA 5 dBi	4
	Waspote Gateway 802.15.4 PRO SMA 5 dBi	1
	GPS Module	1
	GSM / GPRS Module	1
	3G Module	1
	Bluetooth Module PRO 5 dBi	1
	Waspote RFID 13.56 MHz	1
	13.56 MHz / NFC stickers (5 pack)	1
	WiFi module 5 dBi	1
Sensor Boards	Gases Board	2
	Events Board	2
	Smart Cities Board	2
	Agriculture PRO Board	1
	Prototyping Board	1
	Expansion Radio Board Module	2

	Item	Pieces
Sensors	Temperature sensor	4
	Humidity sensor	1
	CO sensor	1
	CO ₂ sensor	1
	Air pollutants I sensor	1
	NO ₂ sensor	1
	Presence sensor (PIR)	1
	Luminosity LDR sensor	4
	Dust Sensor	1
	Ultrasound sensor (indoor)	1
	Soil / Water temperature sensor	1
	Soil moisture sensor	1
	Solar radiation sensor	1
	Weather Station WS-3000 (anemometer + wind vane + pluviometer)	1
	Microphone (dBA)	1
Accessories	Rigid Solar Panel 7V – 500mA	2
	6600 mAh rechargeable battery	4
	MicroSD 2GB card pack (5 units)	1

	Item	Pieces
Support	Attendee place at Libelium training course*	1
	Technical consultancy – 3 hours package	1

* Please check our website or Support section for training courses calendar.
 ** When purchased as a kit, you save almost 35% on the retail price of these separate items.



Now that you have configured your hardware, go to the **Orders** section to place your order.



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Wasmote Plug & Sense!: technology ready to install

Wasmote Plug & Sense! is the the best option to use in commercial deployments. It has been designed with a robust waterproof enclosure that simplifies installation and maintenance process. Moreover, you can order them factory-programmed saving you development costs and time. The result is a ready to install and easy to deploy sensor device that reduces time to market in any application. You can focus on your customer and forget about the sensing part.

Any scenario	<ul style="list-style-type: none"> • 80+ sensors available, up to 6 sensors per sensor device • Communication: 802.15.4, 868/900MHz, LoRaWAN, LoRa, Sigfox, ZigBee, WiFi, 3G/GPRS and Bluetooth Low Energy
For real projects	<ul style="list-style-type: none"> • Robust waterproof IP65 enclosure • Solar powered with internal and external panel options
Fast installation	<ul style="list-style-type: none"> • Factory-programmed and configured • Special holders and brackets to install in street lights and building fronts • ON / OFF external button • External socket for SIM card
Easy maintenance	<ul style="list-style-type: none"> • Remote firmware upgrades of multiple nodes at once (OTAP) • Replace or add a sensor probe in seconds • External, contactless device-reset with magnet




Configuring your Plug & Sense! device

You can customize any Wasmote Plug & Sense! model by choosing the radio, power option, sensors and optional accessories.

Since each sensor has different power requirements and dedicated circuitry, sensor probes can be attached only to certain sockets (named A - F in the figure). There is a sensors table in all the models explaining all the possible connections between sensor probes and sockets.

Each socket supports **one sensor at the same time**

Each socket supports one sensor at the same time



Sensor	Sockets					
	A	B	C	D	E	F
Temperature	✓					
Humidity		✓				
CO ₂			✓			
NO ₂				✓		
O ₂					✓	
CO	✓					✓

In this example the CO Sensor can be connected to the socket A or F indistinctly

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Choosing your Plug & Sense! model

Smart Environment



- Temperature
- Humidity
- Atmospheric pressure
- CO
- CO₂
- O₂
- CH₄
- NH₃
- NO₂
- O₃
- Volatile Organic Compounds
- Liquified petroleum gases
- Air pollutants - I & II
- Solvent vapors

Smart Environment PRO



- CO
- CO₂
- O₂
- O₃
- NO
- NO₂
- SO₂
- NH₃
- CH₄
- (and other combustible gases)
- Particle Matter (PM2.5 / PM10)
- Dust Sensor
- Temperature, Humidity and Pressure

Smart Agriculture



- Temperature + Humidity (Sensirion)
- Atmospheric pressure
- Anemometer + Wind vane + Pluviometer
- Soil moisture (1.5 m) / (4.5 m) / (8 m)
- Leaf wetness

Smart Agriculture PRO



- Temperature
- Soil / Water temperature
- Solar radiation
- Trunk diameter
- Stem diameter
- Fruit diameter
- Temperature + Humidity (Sensirion)
- Soil moisture (1.5 m)/(4.5 m)/(8 m)
- Leaf wetness
- Anemometer + Wind vane + Pluviometer (special configuration)

Smart Security



- Temperature + Humidity (Sensirion)
- Luminosity (LDR)
- Presence (PIR)
- Horizontal liquid level (water / combustibles)
- Water leakage (point / line)
- Hall effect
- Water flow small
- Water flow medium
- Water flow large

Ambient Control



- Temperature + Humidity (Sensirion)
- Luminosity (LDR)
- Luminosity (Luxes accuracy)

We provide prices in USD to US customers. Please submit your RFQ, and we will provide you with the USD prices.

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Radiation Control	Smart Water	Smart Water Ions	Smart Cities	Smart Parking	Traffic Congestion
					
<ul style="list-style-type: none"> - Geiger tube [β, γ] (Beta and Gamma) 	<ul style="list-style-type: none"> - Soil / Water temperature - Conductivity - Dissolved Oxygen - pH - Turbidity 	<ul style="list-style-type: none"> - Ion Ca^{2+} - Ion F^- - Ion BF_4^- - Ion NO_3^- - Ion Br^- - Ion Cl^- - Ion Cu^{2+} - Ion I^- - Silver (Ag^+) - pH - Soil / Water Temperature 	<ul style="list-style-type: none"> - Temperature - Humidity - Luminosity (LDR) - Microphone (dBA) - Linear displacement - Ultrasound (outdoor IP67) 	<ul style="list-style-type: none"> - Magnetic field (3 axis): <ul style="list-style-type: none"> · X axis · Y axis · Z axis 	<ul style="list-style-type: none"> - Meshlium can detect WiFi and Bluetooth devices, like smart-phones and tablets. This enables the user to calculate the number of people passing through the range area.

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Smart Environment

This model allows the use of a wide variety of gas sensors. Thus it is suitable for environmental applications and also for any scenario in security or industrial processes involving air monitoring.

Communication options	Ref.	Price
Plug & Sense! EN 802.15.4-PRO 5 dBi	EN-802	
Plug & Sense! EN Digimesh-PRO 5 dBi	EN-DG	
Plug & Sense! EN ZB-PRO 5 dBi	EN-ZB	
Plug & Sense! EN WiFi 5 dBi	EN-W	
Plug & Sense! EN GPRS	EN-GPRS	
Plug & Sense! EN GPRS + GPS	EN-GPRS-GPS	
Plug & Sense! EN 3G	EN-3G	
Plug & Sense! EN 868 4.5 dBi	EN-868	
Plug & Sense! EN LoRaWAN - 868	EN-LW-868	
Plug & Sense! EN LoRaWAN - 433	EN-LW-433	
Plug & Sense! EN LoRaWAN - 900-915	EN-LW-900	Coming in 2016
Plug & Sense! EN 900 4.5 dBi	EN-900	
Plug & Sense! EN Sigfox - 868*	EN-SF-868	
Plug & Sense! EN LoRa - 868	EN-LoRa-868	
Plug & Sense! EN LoRa - 900	EN-LoRa-900	
Plug & Sense! EN BLE 5 dBi	EN-BLE	

* Does NOT include Sigfox connectivity, the user must hire this service directly from Sigfox. Check network availability in your country.



Looking for a working and programmed demo with this product?
Try our out-of-the-box IoT Vertical kits!

Intro Models Power Options Accessories Data Support Orders

Sensors available:

Sensor	Sockets						Ref.	Price
	A	B	C	D	E	F		
Temperature	✓						9203-P	
Humidity		✓					9204-P	
CO ₂			✓				9230-P	
NO ₂				✓			9238-PB	
O ₂					✓		9231-P	
CO	✓					✓	9229-P	
NH ₃	✓					✓	9233-P	
CH ₄	✓					✓	9232-P	
Liquified petroleum Gases (H ₂ , CH ₄ , ethanol & isobutane)	✓					✓	9234-P	
Air pollutants-I (NH ₃ , SH ₂ , ethanol and toluene)	✓					✓	9235-P	
Air pollutants-II (H ₂ , CH ₄ , CO, ethanol and isobutane)	✓					✓	9236-P	
Solvent vapors (H ₂ , CH ₄ , CO, ethanol and isobutane)	✓					✓	9237-P	
O ₃					✓		9258-PB	
Volatile Organic Compounds					✓		9201-PB	
Atmospheric pressure		✓					9250-P	

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Smart Environment PRO

This model model has been created as an evolution of Smart Enviroment. It enables the user to implement pollution, air quality, industrial, environmental or farming projects with high requirements in terms of high accuracy, reliability and measurement range as the sensors come calibrated from factory.

Communication options	Ref.	Price
Plug & Sense! SE-PRO 802.15.4-PRO 5 dBi	SEP-802	
Plug & Sense! SE-PRO Digimesh-PRO 5 dBi	SEP-DG	
Plug & Sense! SE-PRO ZB-PRO 5 dBi	SEP-ZB	
Plug & Sense! SE-PRO WiFi 5 dBi	SEP-W	
Plug & Sense! SE-PRO GPRS	SEP-GPRS	
Plug & Sense! SE-PRO GPRS + GPS	SEP-GPRS-GPS	
Plug & Sense! SE-PRO 3G	SEP-3G	
Plug & Sense! SE-PRO 868 4.5 dBi	SEP-868	
Plug & Sense! SE-PRO LoRaWAN - 868	SEP-LW-868	
Plug & Sense! SE-PRO LoRaWAN - 433	SEP-LW-433	
Plug & Sense! SE-PRO LoRaWAN - 900-915	SEP-LW-900	Coming in 2016
Plug & Sense! SE-PRO 900 4.5 dBi	SEP-900	
Plug & Sense! SE-PRO Sigfox - 868*	SEP-SF-868	
Plug & Sense! SE-PRO LoRa - 868	SEP-LoRa-868	
Plug & Sense! SE-PRO LoRa - 900	SEP-LoRa-900	
Plug & Sense! SE-PRO BLE 5 dBi	SEP-BLE	

* Does NOT include Sigfox connectivity, the user must hire this service directly from Sigfox. Check network availability in your country.



Looking for a working and programmed demo with this product?
Try our out-of-the-box IoT Vertical kits!

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Sensors available:

Sensor	Sockets						Ref.	Price
	A	B	C	D	E	F		
Temperature, Humidity and Pressure					✓		9370-P	
CO (Calibrated) ⁽¹⁾	✓	✓	✓			✓	9371-P	
CO ₂ (Calibrated)* ⁽¹⁾	✓	✓	✓			✓	9372-P	
O ₂ (Calibrated) ⁽¹⁾	✓	✓	✓			✓	9373-P	
O ₃ (Calibrated) ⁽¹⁾	✓	✓	✓			✓	9374-P	
NO (Calibrated) ⁽¹⁾	✓	✓	✓			✓	9375-P	
NO ₂ (Calibrated) ⁽¹⁾	✓	✓	✓			✓	9376-P	
SO ₂ (Calibrated) ⁽¹⁾	✓	✓	✓			✓	9377-P	
NH ₃ (Calibrated) ⁽¹⁾	✓	✓	✓			✓	9378-P	
CH ₄ and Combustible Gas (Calibrated)* ⁽¹⁾	✓	✓	✓			✓	9379-P	
H ₂ (Calibrated) ⁽¹⁾	✓	✓	✓			✓	9380-P	
H ₂ S (Calibrated) ⁽¹⁾	✓	✓	✓			✓	9381-P	
HCl (Calibrated) ⁽¹⁾	✓	✓	✓			✓	9382-P	
HCN (Calibrated) ⁽¹⁾	✓	✓	✓			✓	9383-P	
PH ₃ (Calibrated) ⁽¹⁾	✓	✓	✓			✓	9384-P	
ETO (Calibrated) ⁽¹⁾	✓	✓	✓			✓	9385-P	
Cl ₂ (Calibrated) ⁽¹⁾	✓	✓	✓			✓	9386-P	
Particle Matter (PM1 / PM2.5 / PM10) - Dust ⁽¹⁾				✓			9387-P	

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Smart Agriculture

This model allows the deployment of any Precision Agriculture application. Due to the complexity of some sensors, there are two versions: Smart Agriculture and Smart Agriculture-PRO.

Communication options	Ref.	Price
Plug & Sense! SA 802.15.4-PRO 5 dBi	SA-802	
Plug & Sense! SA Digimesh-PRO 5 dBi	SA-DG	
Plug & Sense! SA ZB-PRO 5 dBi	SA-ZB	
Plug & Sense! SA WiFi 5 dBi	SA-W	
Plug & Sense! SA GPRS	SA-GPRS	
Plug & Sense! SA GPRS + GPS	SA-GPRS-GPS	
Plug & Sense! SA 3G	SA-3G	
Plug & Sense! SA 868 4.5 dBi	SA-868	
Plug & Sense! SA 900 4.5 dBi	SA-900	
Plug & Sense! SA LoRaWAN - 868	SA-LW-868	
Plug & Sense! SA LoRaWAN - 433	SA-LW-433	
Plug & Sense! SA LoRaWAN - 900-915	SA-LW-900	
Plug & Sense! SA Sigfox - 868*	SA-SF-868	
Plug & Sense! SA LoRa - 868	SA-LoRa-868	
Plug & Sense! SA LoRa - 900	SA-LoRa-900	
Plug & Sense! SA BLE 5 dBi	SA-BLE	

* Does NOT include Sigfox connectivity, the user must hire this service directly from Sigfox. Check network availability in your country.



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Sensors available:

Sensor	Sockets						Ref.	Price
	A	B	C	D	E	F		
Temperature + Humidity (Sensirion)	✓						9247-P	
Atmospheric pressure		✓					9250-P	
Soil moisture 1.5 m			✓		✓	✓	9248-P	
Soil moisture 4.5 m			✓		✓	✓	9324-P	
Soil moisture 8 m			✓		✓	✓	9323-P	
Soil temperature (DS18B20)			✓				86949-P	
WS-3000 (anemometer + wind vane + pluviometer)				✓			9256-P	
Leaf wetness						✓	9249-P	

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Smart Agriculture PRO

The PRO version accepts more sensors than the Standard version.

Communication options	Ref.	Price
Plug & Sense! SA-PRO 802.15.4-PRO 5 dBi	SAP-802	
Plug & Sense! SA-PRO Digimesh-PRO 5 dBi	SAP-DG	
Plug & Sense! SA-PRO ZB-PRO 5 dBi	SAP-ZB	
Plug & Sense! SA-PRO WiFi 5 dBi	SAP-W	
Plug & Sense! SA-PRO GPRS	SAP-GPRS	
Plug & Sense! SA-PRO GPRS + GPS	SAP-GPRS-GPS	
Plug & Sense! SA-PRO 3G	SAP-3G	
Plug & Sense! SA-PRO 868 4.5 dBi	SAP-868	
Plug & Sense! SA-PRO 900 4.5 dBi	SAP-900	
Plug & Sense! SA-PRO LoRaWAN - 868	SAP-LW-868	
Plug & Sense! SA-PRO LoRaWAN - 433	SAP-LW-433	
Plug & Sense! SA-PRO LoRaWAN - 900-915	SAP-LW-900	
Plug & Sense! SA-PRO Sigfox - 868*	SAP-SF-868	
Plug & Sense! SA-PRO LoRa - 868	SAP-LoRa-868	
Plug & Sense! SA-PRO LoRa - 900	SAP-LoRa-900	
Plug & Sense! SA-PRO BLE 5 dBi	SAP-BLE	

* Does NOT include Sigfox connectivity, the user must hire this service directly from Sigfox. Check network availability in your country.



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Sensors available:

Sensor	Sockets						Ref.	Price
	A	B	C	D	E	F		
Temperature + Humidity (Sensirion)	✓						9247-P	
Soil/Water temperature (Pt-1000)		✓					9255-P	
Solar radiation			✓				9251-P	
Ultraviolet			✓				9257-P	
Soil moisture 1.5 m				✓	✓	✓	9248-P	
Soil moisture 4.5 m				✓	✓	✓	9324-P	
Soil moisture 8 m				✓	✓	✓	9323-P	
Soil temperature (DS18B20)				✓			86949-P	
WS-3000 (anemometer + wind vane + pluviometer)*				✓			9256-P	
Leaf wetness						✓	9249-P	
Trunk diameter					✓		9252-P	
Stem diameter					✓		9253-P	
Fruit diameter					✓		9254-P	

* Requires special Plug & Sense! Unit: socket D accepts one single sensor: WS-3000. Please consult your Sales agent.

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Smart Security

This model is designed to allow the detection of different events like movement, presence or water levels and can be used to trigger alarms and actions on these events.

Communication options	Ref.	Price
Plug & Sense! SE 802.15.4-PRO 5 dBi	SE-802	
Plug & Sense! SE Digimesh-PRO 5 dBi	SE-DG	
Plug & Sense! SE ZB-PRO 5 dBi	SE-ZB	
Plug & Sense! SE WiFi 5 dBi	SE-W	
Plug & Sense! SE GPRS	SE-GPRS	
Plug & Sense! SE GPRS + GPS	SE-GPRS-GPS	
Plug & Sense! SE 3G	SE-3G	
Plug & Sense! SE 868 4.5 dBi	SE-868	
Plug & Sense! SE 900 4.5 dBi	SE-900	
Plug & Sense! SE LoRaWAN - 868	SE-LW-868	
Plug & Sense! SE LoRaWAN - 433	SE-LW-433	
Plug & Sense! SE LoRaWAN - 900-915	SE-LW-900	
Plug & Sense! SE Sigfox - 868*	SE-SF-868	
Plug & Sense! SE LoRa - 868	SE-LoRa-868	
Plug & Sense! SE LoRa - 900	SE-LoRa-900	
Plug & Sense! SE BLE 5 dBi	SE-BLE	

* Does NOT include Sigfox connectivity, the user must hire this service directly from Sigfox. Check network availability in your country.



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Sensors available:

Sensor	Sockets						Ref.	Price
	A	B	C	D	E	F		
Temperature + Humidity (Sensirion)	✓						9247-P	
Water flow small		✓					9296-P	
Water flow medium		✓					9297-P	
Water flow large		✓					9298-P	
Presence (PIR) *			✓				9212-P	
Luminosity (LDR)				✓	✓	✓	9205-P	
Water Leakage / Liquid Detection (Point)				✓	✓	✓	9243-P	
Water Leakage / Liquid Detection (Line)				✓			9295-P	
Horizontal liquid level (combustibles)				✓	✓	✓	9239-P	
Horizontal liquid level (water)				✓	✓	✓	9240-P	
Hall Effect				✓	✓	✓	9207-P	

* The sensor can be placed in different positions and pointed directly to the required direction.

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Ambient Control

This model is advised for the large amount of scenarios that only need to monitor temperature, humidity and luminosity sensors.

Communication options	Ref.	Price
Plug & Sense! AC 802.15.4-PRO 5 dBi	AC-802	
Plug & Sense! AC Digimesh-PRO 5 dBi	AC-DG	
Plug & Sense! AC ZB-PRO 5 dBi	AC-ZB	
Plug & Sense! AC WiFi 5 dBi	AC-W	
Plug & Sense! AC GPRS	AC-GPRS	
Plug & Sense! AC GPRS + GPS	AC-GPRS-GPS	
Plug & Sense! AC 3G	AC-3G	
Plug & Sense! AC 868 4.5 dBi	AC-868	
Plug & Sense! AC 900 4.5 dBi	AC-900	
Plug & Sense! AC LoRaWAN - 868	AC-LW-868	
Plug & Sense! AC LoRaWAN - 433	AC-LW-433	
Plug & Sense! AC LoRaWAN - 900-915	AC-LW-900	
Plug & Sense! AC Sigfox - 868*	AC-SF-868	
Plug & Sense! AC LoRa - 868	AC-LoRa-868	
Plug & Sense! AC LoRa - 900	AC-LoRa-900	
Plug & Sense! AC BLE 5 dBi	AC-BLE	

* Does NOT include Sigfox connectivity, the user must hire this service directly from Sigfox. Check network availability in your country.



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Sensors available:

Sensor	Sockets						Ref.	Price
	A	B	C	D	E	F		
Temperature + Humidity (sensirion)	✓						9247-P	
Luminosity (LDR)		✓					9205-P	
Luminosity (luxes accuracy)*			✓				9325-P	

* The sensor can be placed in different positions and pointed directly to the required direction.

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Radiation Control

This model can only attach one sensor for measuring radiation levels in nuclear centrals and surroundings.

Communication options	Ref.	Price
Plug & Sense! RA 802.15.4-PRO 5 dBi	RA-802	
Plug & Sense! RA Digimesh-PRO 5 dBi	RA-DG	
Plug & Sense! RA ZB-PRO 5 dBi	RA-ZB	
Plug & Sense! RA WiFi 5 dBi	RA-W	
Plug & Sense! RA GPRS	RA-GPRS	
Plug & Sense! RA GPRS + GPS	RA-GPRS-GPS	
Plug & Sense! RA 3G	RA-3G	
Plug & Sense! RA 868 4.5 dBi	RA-868	
Plug & Sense! RA 900 4.5 dBi	RA-900	
Plug & Sense! RA LoRaWAN - 868	RA-LW-868	
Plug & Sense! RA LoRaWAN - 433	RA-LW-433	
Plug & Sense! RA LoRaWAN - 900-915	RA-LW-900	
Plug & Sense! RA Sigfox - 868*	RA-SF-868	
Plug & Sense! RA LoRa - 868	RA-LoRa-868	
Plug & Sense! RA LoRa - 900	RA-LoRa-900	
Plug & Sense! RA BLE 5 dBi	RA-BLE	



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Confidential Document / Version: v8.8 / Date: April 2016

This catalogue supersedes any previously released and is valid until publication of another to replace it. Catalogue for the new Wasmote version, also called PRO or v1.2.

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Smart Water

The Smart Water model has been conceived to facilitate the remote monitoring of the most relevant parameters related to water quality. With this platform you can measure more than 6 parameters, including the most relevant for water control such as dissolved oxygen, oxidation-reduction potential, pH, conductivity and temperature. An extremely accurate turbidity sensor has been integrated as well.

Communication options	Ref.	Price
Plug & Sense! SW 802.15.4-PRO 5 dBi	SW-802	
Plug & Sense! SW Digimesh-PRO 5 dBi	SW-DG	
Plug & Sense! SW ZB-PRO 5 dBi	SW-ZB	
Plug & Sense! SW WiFi 5 dBi	SW-W	
Plug & Sense! SW GPRS	SW-GPRS	
Plug & Sense! SW GPRS + GPS	SW-GPRS-GPS	
Plug & Sense! SW 3G	SW-3G	
Plug & Sense! SW 868 4.5 dBi	SW-868	
Plug & Sense! SW 900 4.5 dBi	SW-900	
Plug & Sense! SW LoRaWAN - 868	SW-LW-868	
Plug & Sense! SW LoRaWAN - 433	SW-LW-433	
Plug & Sense! SW LoRaWAN - 900-915	SW-LW-900	
Plug & Sense! SW Sigfox - 868*	SW-SF-868	
Plug & Sense! SW LoRa - 868	SW-LoRa-868	
Plug & Sense! SW LoRa - 900	SW-LoRa-900	
Plug & Sense! SW BLE 5 dBi	SW-BLE	

* Does NOT include Sigfox connectivity, the user must hire this service directly from Sigfox. Check network availability in your country.



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Sensors available:

Sensor	Sockets						Ref.	Price
	A	B	C	D	E	F		
Soil/Water temperature (Pt-1000)*				✓			9255-P	
Conductivity						✓	9326-P	
Dissolved Oxygen					✓		9327	
pH		✓	✓				9328	
Oxidation Reduction Potential		✓	✓				9329	
Turbidity**						✓	9353-P	

Not compatible with LoRa.

* Each Smart Water node includes a Soil/Water temperature probe in the price.

** This item includes all the additional electronics for the turbidity sensor probe. The sensor is sold calibrated from factory. It must be purchased with its corresponding Plug & Sense! Smart Water node; available on demand.

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For Smart Water sensors, it is highly recommended to purchase calibration solutions to calculate accurate measurement. One kit is enough for several sensor units.

Calibration Kit	Ref.	Price
Conductivity Calibration Kit, K=0.1	9339	
Conductivity Calibration Kit, K=1	9340	
Conductivity Calibration Kit, K=10	9341	
DO Calibration Solution	9342	
pH Calibration Kit	9343	
ORP Calibration Solution	9344	
Turbidity Calibration Kit (low)	TCL	
Turbidity Calibration Kit (high)	TCH	



We provide prices in USD to US customers. Please submit your RFQ, and we will provide you with the USD prices.

Smart Water Ions

The Smart Water Ions models specialize in the measurement of ions concentration for drinking water quality control, agriculture water monitoring, swimming pools or waste water treatment. Due to the existence of 2 types for the reference probe, there are two variants: Smart Water Ions Single and Smart Water Ions Double. See below the suitable version depending on the sensors needed.

Communication options	Ref.	Price
Plug & Sense! SWI Single 802.15.4-PRO 5dBi	SWI-S-802	
Plug & Sense! SWI Single Digimesh-PRO 5dBi	SWI-S-DG	
Plug & Sense! SWI Single ZB-PRO 5dBi	SWI-S-ZB	
Plug & Sense! SWI Single WiFi 5dBi	SWI-S-W	
Plug & Sense! SWI Single GPRS	SWI-S-GPRS	
Plug & Sense! SWI Single GPRS + GPS	SWI-S-GPRS-GPS	
Plug & Sense! SWI Single 3G	SWI-S-3G	
Plug & Sense! SWI Single 868 4.5dBi	SWI-S-868	
Plug & Sense! SWI Single 900 4.5dBi	SWI-S-900	
Plug & Sense! SWI Single LoRaWAN - 868	SWI-S-LW-868	
Plug & Sense! SWI Single LoRaWAN - 433	SWI-S-LW-433	
Plug & Sense! SWI Single LoRaWAN - 900-915	SWI-S-LW-900	
Plug & Sense! SWI Single Sigfox - 868*	SWI-S-SF-868	
Plug & Sense! SWI Single LoRa - 868	SWI-S-LoRa-868	
Plug & Sense! SWI Single LoRa - 900	SWI-S-LoRa-900	
Plug & Sense! SWI Single BLE 5dBi	SWI-S-BLE	

* Does NOT include Sigfox connectivity, the user must hire this service directly from Sigfox. Check network availability in your country.



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Sensors available:

Sensor	Sockets						Ref.	Price
	A	B	C	D	E	F		
Soil/Water temperature (Pt-1000)*						✓	9255-P	
Single Junction Reference*					✓		9350	
Calcium Ion (Ca ²⁺)	✓	✓	✓	✓			9352	
Fluoride Ion (F ⁻)	✓	✓	✓	✓			9353	
Fluoroborate Ion (BF ₄ ⁻)	✓	✓	✓	✓			9354	
Nitrate Ion (NO ₃ ⁻)	✓	✓	✓	✓			9355	
pH (for Smart Water Ions)	✓	✓	✓	✓			9363	

* Each Smart Water Ions node, Single variant, includes a Soil/Water temperature probe and a Single Junction Reference probe in the price.

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The Double variant accepts other type of sensors than the Single variant.

Communication options	Ref.	Price
Plug & Sense! SWI Double 802.15.4-PRO 5dBi	SWI-D-802	
Plug & Sense! SWI Double Digimesh-PRO 5dBi	SWI-D-DG	
Plug & Sense! SWI Double ZB-PRO 5dBi	SWI-D-ZB	
Plug & Sense! SWI Double WiFi 5dBi	SWI-D-W	
Plug & Sense! SWI Double GPRS	SWI-D-GPRS	
Plug & Sense! SWI Double GPRS + GPS	SWI-D-GPRS-GPS	
Plug & Sense! SWI Double 3G	SWI-D-3G	
Plug & Sense! SWI Double 868 4.5dBi	SWI-D-868	
Plug & Sense! SWI Double 900 4.5dBi	SWI-D-900	
Plug & Sense! SWI Double LoRaWAN - 868	SWI-D-LW-868	
Plug & Sense! SWI Double LoRaWAN - 433	SWI-D-LW-433	
Plug & Sense! SWI Double LoRaWAN - 900-915	SWI-D-LW-900	
Plug & Sense! SWI Double Sigfox - 868*	SWI-D-SF-868	
Plug & Sense! SWI Double LoRa – 868	SWI-D-LoRa-868	
Plug & Sense! SWI Double LoRa – 900	SWI-D-LoRa-900	
Plug & Sense! SWI Double BLE 5dBi	SWI-D-BLE	

* Does NOT include Sigfox connectivity, the user must hire this service directly from Sigfox. Check network availability in your country.

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Sensors available:

Sensor	Sockets						Ref.	Price
	A	B	C	D	E	F		
Soil/Water temperature (Pt-1000)*						✓	9255-P	
Double Junction Reference*					✓		9351	
Bromide Ion (Br^-)	✓	✓	✓	✓			9356	
Chloride Ion (Cl^-)	✓	✓	✓	✓			9357	
Cupric Ion (Cu^{2+})	✓	✓	✓	✓			9358	
Iodide Ion (I^-)	✓	✓	✓	✓			9360	
Silver Ion (Ag^+)	✓	✓	✓	✓			9362	
pH (for Smart Water Ions)	✓	✓	✓	✓			9363	

* Each Smart Water Ions node, Double variant, includes a **Soil/Water temperature probe** and a **Double Junction Reference probe** in the price.

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For Smart Water Ions sensors, it is highly recommended to purchase calibration solutions to calculate accurate measurement. One kit is enough for several sensor units.

Calibration Kit	Ref.	Price
Calcium Calibration Kit	9366	
Fluoride Calibration Kit	9367	
Fluoroborate Calibration Kit	9368	
Nitrate Calibration Kit	9369	
Bromide Calibration Kit	9388	
Chloride Calibration Kit	9389	
Cupric Calibration Kit	9390	
Iodide Calibration Kit	9391	
Silver Calibration Kit	9392	
pH Calibration Kit	9343	



Smart Cities

This model allows to deploy many Smart Cities and Smart Buildings applications.

Communication options	Ref.	Price
Plug & Sense! SC 802.15.4-PRO 5 dBi	SC-802	
Plug & Sense! SC Digimesh-PRO 5 dBi	SC-DG	
Plug & Sense! SC ZB-PRO 5 dBi	SC-ZB	
Plug & Sense! SC WiFi 5 dBi	SC-W	
Plug & Sense! SC GPRS	SC-GPRS	
Plug & Sense! SC GPRS + GPS	SC-GPRS-GPS	
Plug & Sense! SC 3G	SC-3G	
Plug & Sense! SC 868 4.5 dBi	SC-868	
Plug & Sense! SC 900 4.5 dBi	SC-900	
Plug & Sense! SC LoRaWAN - 868	SC-LW-868	
Plug & Sense! SC LoRaWAN - 433	SC-LW-433	
Plug & Sense! SC LoRaWAN - 900-915	SC-LW-900	
Plug & Sense! SC Sigfox - 868*	SC-SF-868	
Plug & Sense! SC LoRa - 868	SC-LoRa-868	
Plug & Sense! SC LoRa - 900	SC-LoRa-900	
Plug & Sense! SC BLE 5 dBi	SC-BLE	

* Does NOT include Sigfox connectivity, the user must hire this service directly from Sigfox. Check network availability in your country.



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Sensors available:

Sensor	Sockets						Ref.	Price
	A	B	C	D	E	F		
Temperature	✓						9203-P	
Humidity		✓					9204-P	
Luminosity (LDR)			✓				9205-P	
Microphone (dBA)				✓			9259-P	
Linear Displacement*						✓	9319-P	
Ultrasound**	✓	✓					9246-P	

* Fastening accessories are available on demand. Consult the Sales Department.

** The sensor can be placed in different positions and pointed directly to the required direction.

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Smart Parking

This model allows to detect free parking spots. It is designed to be screwed on the surface of parking slots and to detect the arrival and departure of vehicles with an electromagnetic field sensor. It includes a robust polyamide enclosure for a fast and easy surface installation.

This node comes with 2 radios, Sigfox and LoRaWAN, which benefit from all the LPWAN characteristics. The device is easily configured from a PC and can even be reconfigured with the Remote Manager, from the cloud.

This model comes with a non-rechargeable battery of 10.4 Ah.



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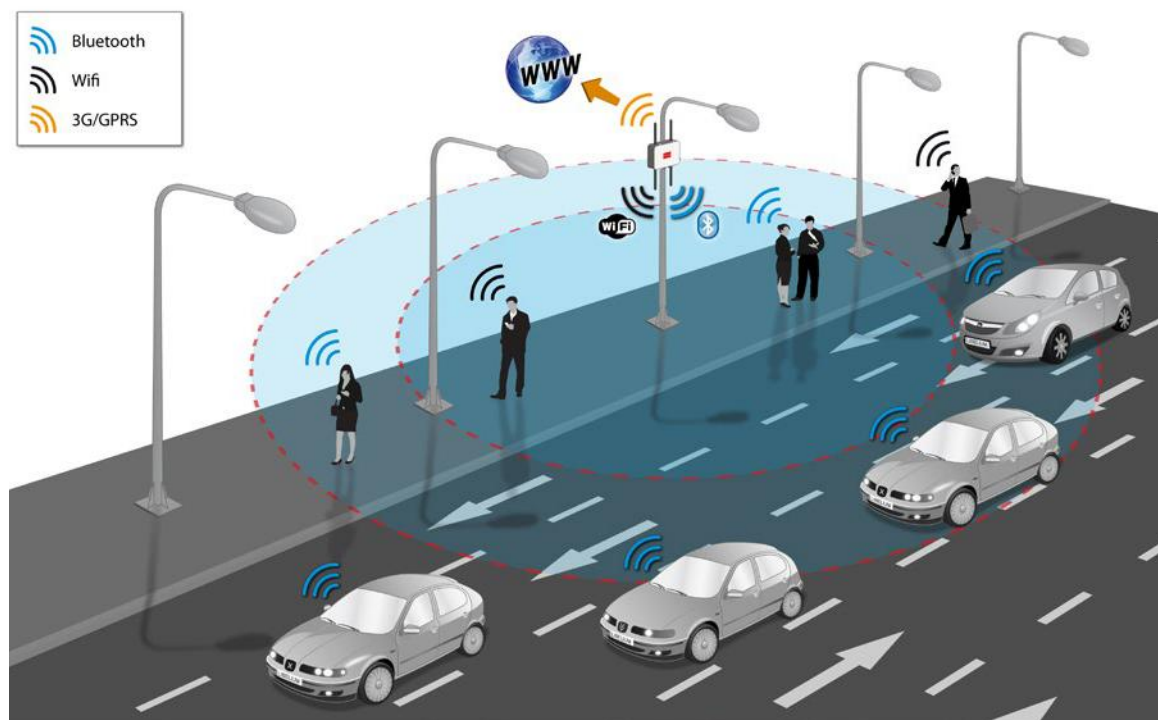
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Smartphone Detection for Traffic Congestion and pedestrian counting

This application is performed with Meshlium and it is the only one that does not allow to attach any sensor. Meshlium can detect any Smartphone in the area by measuring WiFi and Bluetooth activity. This way, pedestrian and traffic congestion can be determined in real time. Meshlium is also the Internet Gateway for Waspote Plug & Sense! It is possible to combine these two features (scanning and internet gateway) within the same machine. For more information about Meshlium models and prices [see Meshlium section](#).



Power options

One of the following options is necessary for each Plug & Sense! unit.

Power options	Ambient Control	Smart Cities	Smart Parking ⁽²⁾	Smart Environment	Smart Environment PRO	Smart Agriculture	Smart Security	Smart Water	Smart Water Ions	Radiation Control	Ref.	Price
6600mAh rechargeable battery + external solar panel 7V - 500mA	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	6600-EXT	
6600mAh rechargeable battery + internal solar panel 6.5V - 205mA	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	6600-INT	
6600mAh rechargeable battery + 220V adapter	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	6600-220V	
6600mAh rechargeable battery + 220V adapter + plug adapter ⁽¹⁾	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	6600-220V-J	
26Ah Non – rechargeable ⁽³⁾	✓	✓	X	✓	✓	✓	✓	✓	✓	✓	6022	

1.- Includes adapter for the mains electricity in countries like USA, UK, Australia, Canada, China, Japan, Singapore or Hong Kong.

2.- Smart Parking comes by default with a 10.4 Ah non-rechargeable battery; other power options do not make sense.

3.- This power option is not available for GPRS, GPRS+GPS, or 3G nodes.

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Accessories

The following items are optional. Feel free to choose!

Accessories	Ambient Control	Smart Cities	Smart Parking	Smart Environment	Smart Environment PRO	Smart Agriculture	Smart Security	Smart Water	Smart Water Ions	Radiation Control	Ref.	Price
GPS	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	WGPS	
Extension cord 1.5 m ⁽¹⁾	✓	✓	✗	✓	✗	✓	✓	✓ ⁽²⁾	✓ ⁽²⁾	✗	10250	
Extension cord 3 m	✓	✓	✗	✓	✗	✓	✓	✓ ⁽²⁾	✓ ⁽²⁾	✗	10251	
Solar shield small (Ø102 x 89 mm) ⁽³⁾	✓	✓	✗	✓	✗	✓	✓	✗	✗	✗	10252	
Solar shield big (213 x 188 x 125 mm) ⁽³⁾	✓	✓	✗	✓	✗	✓	✓	✗	✗	✗	10253	
Magnet for contactless reset ⁽⁴⁾	✓	✓	✓ ⁽⁵⁾	✓	✓	✓	✓	✓	✓	✓	10342	

1.- Extension cords are compliant with most sensor probes. One extension cord per sensor required.

2.- For Smart Water, extension cords are only compliant with the Soil/Water temperature probe.

3.- Solar shields protect sensor measurements from solar temperature. One solar shield can protect several sensors, depending on the size.

4.- A single magnet can be used for many motes. It is highly recommended.

5.- The magnet is EXTREMELY recommended for Smart Parking.



Now that you have configured your hardware, go to **Data** section to decide how to connect to the Cloud.



We provide prices in USD to US customers. Please submit your RFQ, and we will provide you with the USD prices.

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Support

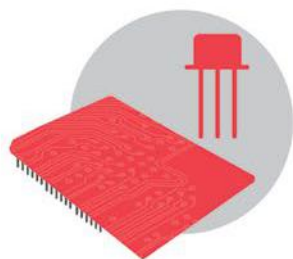
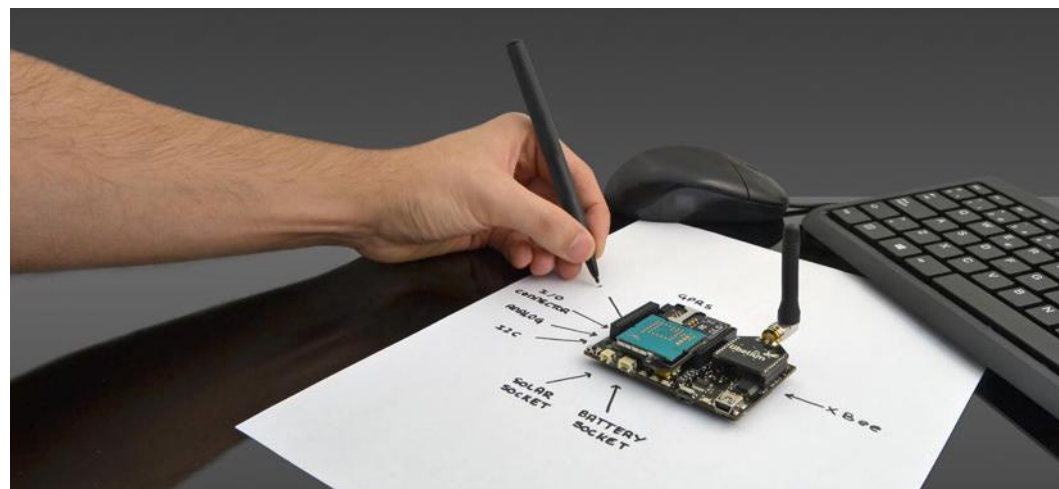
Orders

Wasmote OEM: technology for developers

Wasmote OEM is the best option to research and develop. With a good C++ programming level, you can explore multiple possibilities with its Open Source API, 400+ online code examples and documentation.

Since it has no enclosure, you can try all kind of different hardware combinations, it is more handy to work with it at your lab table and you can use that extra money in getting more sensors and communication modules.

For configuring your hardware you will have to choose:



Board + Sensors

+



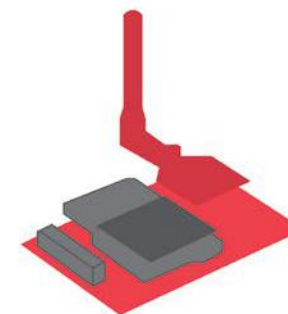
Communication Protocol

+



Power Supply

=



Your Custom Device

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Sensors

To make it easier the deployment of sensor networks we have created 10 sensor boards to integrate more than 80 different sensors.

Gases



- CO
- CO₂
- O₂
- CH₄
- NH₃
- NO₂
- O₃ ⁽¹⁾
- Temperature
- Humidity
- Atmospheric pressure
- Volatile Organic Compounds ⁽¹⁾
- Liquified petroleum gases (H₂, CH₄, ethanol & isobutane)
- Air pollutants I (NH₃, SH₂, ethanol and toluene)
- Air pollutants II (H₂, CH₄, CO, ethanol & isobutane)
- Solvent vapors (H₂, CH₄, CO, ethanol & isobutane)

Gases PRO



- CO
- CO₂
- O₂
- O₃
- NO
- NO₂
- SO₂
- NH₃
- CH₄
- H₂
- H₂S
- HCl
- HCN
- PH₃
- ETO
- Cl₂
- (and other combustible gases)
- Particle Matter (PM1 / PM2.5 / PM10) – Dust Sensor ⁽²⁾
- Temperature, Humidity and Pressure

Events



- Temperature
- Luminosity LDR
- Presence PIR
- Horizontal liquid level (combustibles) / (water)
- Vertical liquid level (water)
- Water presence
- Hall effect ⁽³⁾
- Vibration
- Water flow small
- Water flow medium
- Water flow large

Cities



- Temperature
- Humidity
- Luminosity LDR
- Microphone (dBA)
- Ultrasound (indoor)
- Ultrasound (outdoor IP67)
- Linear displacement ⁽³⁾
- Dust

1. O₃ and VOC sensors go in the same socket, thus, they cannot work in the same board at the same time.

2. Only available in the Plug & Sense! Smart Environment PRO line.

3. For doors and windows.

3. Fastening accessories are available on demand. Consult the Sales Department.

We provide prices in USD to US customers. Please submit your RFQ, and we will provide you with the USD prices.

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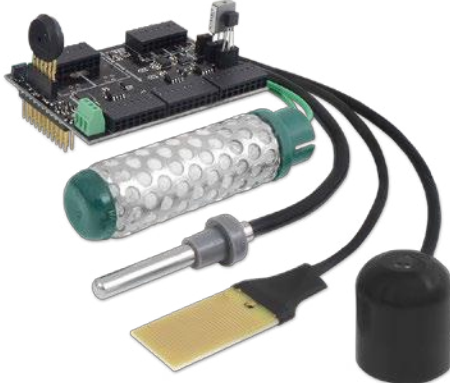
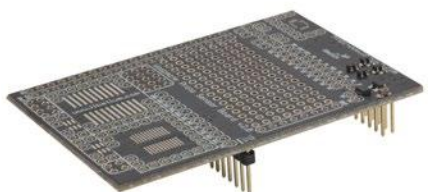
Connectivity

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Parking *	Agriculture	Agriculture PRO	Prototyping
			
<ul style="list-style-type: none"> - Magnetic Field (3 axis): <p>* Always supplied with a Wasp mote.</p> <p>Note: Smart Parking is only available with the Plug & Sense! line.</p>	<ul style="list-style-type: none"> - Temperature - Humidity - Luminosity LDR - Anemometer + wind vane + pluviometer - Temperature + humidity (Sensirion) - Soil moisture ⁽⁴⁾ (1.5 m) / (4.5 m) / (8 m) - Leaf wetness 	<ul style="list-style-type: none"> - Temperature - Humidity - Luminosity LDR - Anemometer + wind vane + pluviometer - Temperature + humidity (Sensirion) - Soil moisture ⁽⁴⁾ (1.5 m) / (4.5 m) / (8 m) - Leaf wetness - Soil/Water temperature - Solar radiation - Trunk diameter - Stem diameter - Fruit diameter - Ultraviolet radiation 	<ul style="list-style-type: none"> - Pad Area - Integrated Circuit Area - Analog-to-Digital Converter (16b)

4. In each agriculture board 3 soil moistures can be connected in order to measure the parameter in different depth levels.

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Video Camera Standard / Advanced *

Radiation

4-20 mA (Current Loop)



- Camera
- Luminosity
- Infra-Red (IR)
- Presence (PIR)

** Must always be purchased with a 3G module. Includes IR, luminosity (LDR) and PIR sensors.*

- Geiger tube [β , γ] (Beta and Gamma)

- Sensors and Instruments
- Remote transducers
- Monitoring processes
- Data transmission in industrial ambients

The user can choose among a wide variety of standard sensors

WCAM-ST / WCAM-ADV (Available on demand)

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Smart Water *



- Soil/Water Temperature
- Conductivity
- Dissolved Oxygen
- pH
- Turbidity**

* Contains Soil/Water temperature sensor and 3 BNC pigtails.

** This item includes all the additional electronics for the turbidity sensor. The sensor is sold calibrated from factory.

Smart Water Ions



- Calcium (Ca^{2+})
- Fluoride (F^-)
- Fluoroborate (BF_4^-)
- Nitrate (NO_3^-)
- Bromide (Br^-)
- Chloride (Cl^-)
- Cupric (Cu^{2+})
- Iodide (I^-)
- Silver (Ag^+)
- pH
- Soil / Water Temperature
- Single Junction Reference Probe
- Double Junction Reference Probe

* Contains Soil/Water temperature sensor and 5 BNC pigtails. Ion sensors need Reference Probe.

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Sensor	Ref.	Price	Sensor	Ref.	Price	Sensor	Ref.	Price
Temperature	9203		Vibration (thread)	9222		CO (Calibrated) ⁽⁴⁾	9371	
Humidity	9204-5V		Atmospheric pressure	9250		CO ₂ (Calibrated) ⁽⁴⁾	9372	
Humidity (Events Board version)	9204-3V		CO	9229		O ₂ (Calibrated) ⁽⁴⁾	9373	
Luminosity LDR	9205		CO ₂	9230		O ₃ (Calibrated) ⁽⁴⁾	9374	
Microphone (dBA)	9259		O ₂	9231		NO (Calibrated) ⁽⁴⁾	9375	
Linear displacement ⁽¹⁾	9319		CH ₄	9232		NO ₂ (Calibrated) ⁽⁴⁾	9376	
Dust	9320		NH ₃	9233		SO ₂ (Calibrated) ⁽⁴⁾	9377	
Pressure/ Weight	9219		NO ₂	9238-B		NH ₃ (Calibrated) ⁽⁴⁾	9378	
Presence (PIR)	9212		Ozone-O ₃ ⁽³⁾	9258-B		CH ₄ and Combustible Gas (Calibrated) ⁽⁴⁾	9379	
Horizontal liquid level (combustibles)	9239		Volatile Organic Compounds ⁽³⁾	9201-B		H ₂ (Calibrated) ⁽⁴⁾	9380	
Horizontal liquid level (water)	9240		Liquified petroleum gases (H ₂ , CH ₄ , ethanol & isobutane)	9234		H ₂ S (Calibrated) ⁽⁴⁾	9381	
Vertical liquid level (water)	9242		Air pollutants-I (NH ₃ , SH ₂ , ethanol and toluene)	9235		HCl (Calibrated) ⁽⁴⁾	9382	
Water Leakage / Liquid Detection (Point)	9243		Air pollutants-II (H ₂ , CH ₄ , CO, ethanol and isobutane)	9236		HCN (Calibrated) ⁽⁴⁾	9383	
Water Leakage / Liquid Detection (line)	9295		Solvent vapors (H ₂ , CH ₄ , CO, ethanol and isobutane)	9237		PH ₃ (Calibrated)	9384	
Hall effect ⁽²⁾	9207		Temperature, Humidity and Pressure	9370		ETO (Calibrated)	9385	
Vibration (lamina)	9221					Cl ₂ (Calibrated)	9386	

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Sensor	Ref.	Price	Sensor	Ref.	Price	Sensor	Ref.	Price
Ultrasound (indoor)	9213		Soil moisture ⁽⁶⁾ (8 m)	9323		pH (for Smart Water Ions)	9363	
Ultrasound (outdoor IP67)	9246		Leaf wetness	9249		Single Junction Reference Probe ⁸	9350	
Distance (by metallic pressure)	9267		Conductivity	9326		Double Junction Reference Probe ⁹	9351	
Water flow small	9296		Dissolved Oxygen	9327		<p>1. Fastening accessories are available on demand. Consult the Sales Department.</p> <p>2. For doors and windows.</p> <p>3. O₃ and VOC sensors are connected to the same socket, thus, it is not possible to have them working within the same board at the same time, but they are interchangeable.</p> <p>4. Check delivery time with your sales agent.</p> <p>5. Each Smart Water or Smart Water ions board includes a Soil/Water temperature sensor.</p> <p>6. In each agriculture board, 3 soil moistures can be connected in order to measure the parameter in different depth levels.</p> <p>7. This pack comprises the turbidity sensor and all the needed electronics, including special Waspnote, RS-485 module and Expansion Board. Sensor is calibrated in factory. Pack available on demand. Not compatible with LoRa.</p> <p>8. This reference probe is mandatory for ion sensors like Calcium (Ca²⁺), Fluoride (F⁻), Fluoroborate (BF₄⁻), Nitrate (NO₃⁻) and pH (for Smart Water Ions).</p> <p>9. This reference probe is mandatory for ion sensors like Bromide (Br⁻), Chloride (Cl⁻), Cupric (Cu²⁺), Iodide (I⁻), Silver (Ag⁺) and pH (for Smart Water Ions).</p>		
Water flow medium	9297		pH	9328				
Water flow large	9298		Oxidation Reduction Potential	9329				
Soil/Water temperature ⁽⁵⁾	9255		Waspnote Turbidity Pack ⁽⁷⁾	WTUR				
Solar radiation	9251		Calcium Ion (Ca ²⁺)	9352				
Trunk diameter	9252		Fluoride Ion (F ⁻)	9353				
Stem diameter	9253		Fluoroborate Ion (BF ₄ ⁻)	9354				
Fruit diameter	9254		Nitrate Ion (NO ₃ ⁻)	9355				
Anemometer + wind vane + pluviometer	9256		Bromide Ion (Br ⁻)	9356				
Ultraviolet radiation	9257		Chloride Ion (Cl ⁻)	9357				
Temperature + humidity (Sensirion)	9247		Cupric Ion (Cu ²⁺)	9358				
Soil moisture ⁽⁶⁾ (1'5 m)	9248		Iodide Ion (I ⁻)	9360				
Soil moisture ⁽⁶⁾ (4'5 m)	9324		Silver Ion (Ag ⁺)	9362				

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For Smart Water and for Smart Water Ions sensors it is highly recommended to purchase calibration solutions to calculate accurate measurement. One kit is enough for several sensor units:

Calibration Kit	Ref.	Price
Conductivity Calibration Kit, K=0.1	9339	
Conductivity Calibration Kit, K=1	9340	
Conductivity Calibration Kit, K=10	9341	
DO Calibration Solution	9342	
pH Calibration Kit	9343	
ORP Calibration Solution	9344	
Turbidity Calibration Kit (low)	TCL	
Turbidity Calibration Kit (high)	TCH	
Calcium Calibration Kit	9366	
Fluoride Calibration Kit	9367	
Fluoroborate Calibration Kit	9368	
Nitrate Calibration Kit	9369	
Bromide Calibration Kit	9388	
Chloride Calibration Kit	9389	
Cupric Calibration Kit	9390	
Iodide Calibration Kit	9391	
Silver Calibration Kit	9392	

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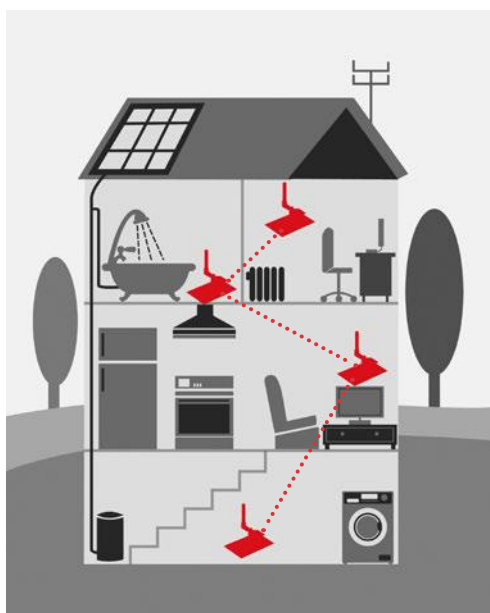
Data

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Configuring your Wasmotes: Connectivity

Wasmote model is determined by the selected communication radio. Each Wasmote model can have different types of antenna: 2 dBi or 5 dBi for 2.4 GHz models and 4.5 dBi for the rest of frequencies.



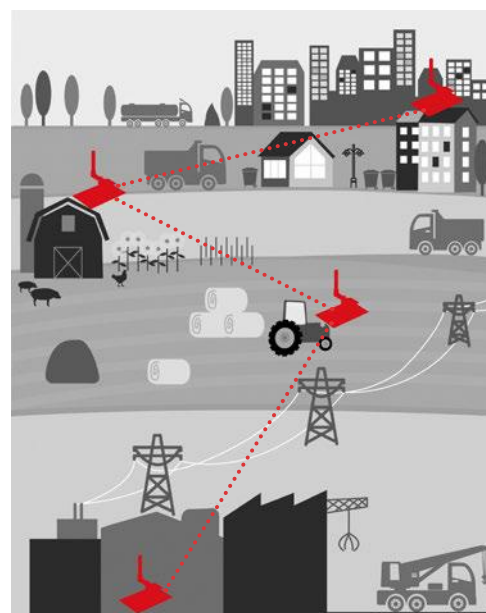
WiFi
Bluetooth
Bluetooth Low Energy

~ 0-300 m



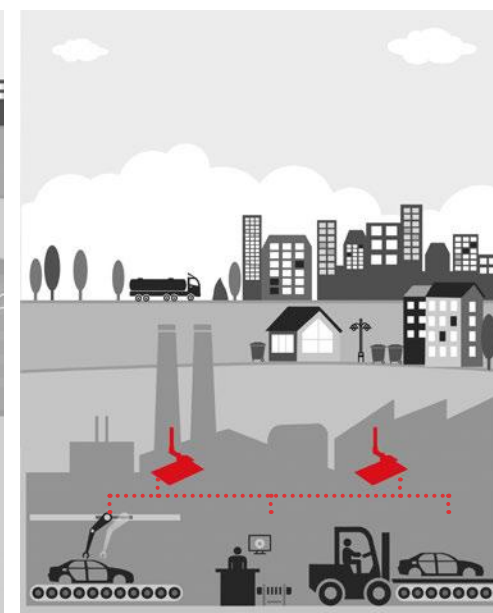
3G - GPRS-Sigfox - LoRaWAN

Typical Carrier Range



802.15.4
Digimesh
ZigBee-PRO
868 MHz
900 MHz
LoRa

~ 7-22+ Km



RS-485
RS-232
4-20 mA
CAN Bus
Modbus

~ 0-200 m

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The following table compares the features of all available options according to frequency, use zone, protocol and range.

Wasmote price chart depending on model:

Model	Frequency band	Use zone	Protocol	Distance outdoors ⁽¹⁾	Ref.	Price	Price > 5 units
Wasmote 802.15.4-PRO SMA 2 dBi	2.4 GHz	Worldwide	802.15.4		W802P-SMA2		
Wasmote 802.15.4-PRO SMA 5 dBi	2.4 GHz	Worldwide	802.15.4	7 Km	W802P-SMA5		
Wasmote Digimesh-PRO SMA 2 dBi	2.4 GHz	Worldwide	Digimesh		WDMP-SMA2		
Wasmote Digimesh-PRO SMA 5 dBi	2.4 GHz	Worldwide	Digimesh	7 Km	WDMP-SMA5		
Wasmote ZB-PRO SMA 2 dBi	2.4 GHz	Worldwide	ZigBee-Pro		WZBP-SMA2		
Wasmote ZB-PRO SMA 5 dBi	2.4 GHz	Worldwide	ZigBee-Pro	7 Km	WZBP-SMA5		
Wasmote 868 SMA 4.5 dBi	868 MHz	Europe	RF	12 Km	W868-SMA4		
Wasmote 900 SMA 4.5 dBi	900 MHz	USA & Canada	RF	10 Km	W900-SMA4		
Wasmote LoRaWAN SMA 4.5 dBi - 868	868 MHz	Europe	LoRaWAN	-km- Typical base station range	WLW-SMA4-868		
Wasmote LoRaWAN SMA 4.5 dBi - 433	433 MHz	Worldwide	LoRaWAN	-km- Typical base station range	WLW-SMA4-433		
Wasmote LoRaWAN SMA 4.5 dBi - 900-915	900 MHz	USA & Canada	LoRaWAN	-km- Typical base station range	WLW-SMA4-900		
Wasmote Sigfox SMA 4.5 dBi – 868 ²	868 MHz	Europe	Sigfox	-km- Typical base station range	WSF-SMA4-868		

We provide prices in USD to US customers. Please submit your RFQ, and we will provide you with the USD prices.

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Wasmote price chart depending on model:

Model	Frequency band	Use zone	Protocol	Distance outdoors ⁽¹⁾	Ref.	Price	Price > 5 units
Wasmote LoRa SMA 4.5 dBi - 868	868 MHz	Europe	RF	22+ Km	WLoRa-SMA4-868		
Wasmote LoRa SMA 4.5 dBi - 900	900 MHz	USA & Canada	RF	22+ Km	WLoRa-SMA4-900		
Wasmote WiFi SMA 2 dBi	2.4 GHz	Worldwide	802.11b/g		WWIFI-SMA2		
Wasmote WiFi SMA 5 dBi	2.4 GHz	Worldwide	802.11b/g	100-300 m	WWIFI-SMA5		
Wasmote + GPRS	850/900/1800/1900 MHz	Worldwide	GSM – GPRS	- Km - Typical carrier range	WA-GPRS		
Wasmote + GPRS + GPS	850/900/1800/1900 MHz	Worldwide	GSM – GPRS	- Km - Typical carrier range	WA-GPRS-GPS		
Wasmote + 3G	Dual-band: WCDMA/ UMTS 900/2100 MHz Tri-band: GSM/GPRS/ EDGE 850/900/1800MHz	Worldwide	GSM – GPRS – 3G	- Km - Typical carrier range	WA-3G		
Wasmote Bluetooth Pro 2 dBi	2.4 GHz	Worldwide	Bluetooth 2.1 + EDR Class 2		WWBTS-SMA2		
Wasmote Bluetooth Pro 5 dBi	2.4 GHz	Worldwide	Bluetooth 2.1 + EDR Class 2	30-100 m	WWBTS-SMA5		
Wasmote Bluetooth Low Energy 2 dBi	2.4 GHz	Worldwide	Bluetooth 4.0 / Bluetooth Smart		WBLE-SMA2		
Wasmote Bluetooth Low Energy 5 dBi	2.4 GHz	Worldwide	Bluetooth 4.0 / Bluetooth Smart	100 m	WBLE-SMA5		

1.- Tests performed with 5 dBi omnidirectional antenna, line-of-sight and Fresnel zone clearance conditions.

2.-Does NOT include Sigfox connectivity, the user must hire this service directly from Sigfox. Check network availability in your country.

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Industrial Protocols

Waspnote can integrate communication modules for the most common wired communication protocols: RS-485, RS-232, CAN Bus and Modbus. These are widely used standards in the industrial and automation market for connecting devices and sensors, not in a wireless way but with cables. The user can interface Waspnote ecosystem with these protocols.

Waspnote allows to perform three main applications:

1. Connect any sensor to an existing industrial bus.
2. Add wireless connectivity to wired buses.
3. Connect to the Cloud industrial devices.

Waspnote price chart depending on model:

Model	Ref.	Price	Price > 5 units
Waspnote RS-232 Serial / Modbus + DB9 cable	WA-232		
Waspnote RS-485 / Modbus + DB9 cable	WA-485		
Waspnote CAN Bus + DB9 cable	WA-CAN		



Waspnote RS-232 Serial / Modbus



Waspnote RS-485 / Modbus



Waspnote CAN Bus

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Expansion Radio Board

The Expansion Board allows to connect two radios at the same time. This means a lot of different combinations are possible using any of the radios available for Waspote: 802.15.4, Digimesh, ZigBee, Bluetooth, Bluetooth Low Energy, RFID/NFC, WiFi, GSM/GPRS, GPRS+GPS, 3G/GPRS, 868 MHz, 900 MHz, LoRaWAN, LoRa and Sigfox. Besides, the Expansion Radio Board can be utilized to connect the Industrial Protocols modules.

Applications:

- Multifrequency Sensor Networks: (2.4GHz – 868/900MHz, LoRa)
- Sigfox - ZigBee hybrid networks
- NFC (RFID) applications with GPRS
- LoRaWAN - WiFi hybrid networks
- Industrial Protocols – wireless hybrid networks



Expansion Radio Board: ZigBee - Bluetooth connection

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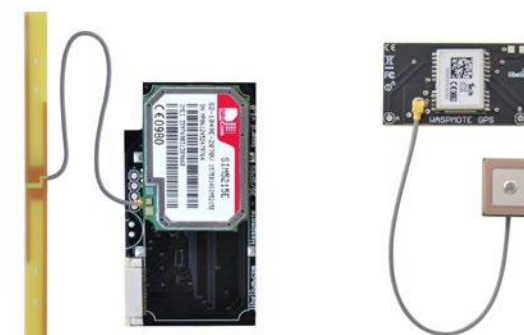
Orders

Model	Require Expansion Radio Board?	Direct connection to Wasmote	Ref.	Price
Expansion Radio Board	-	-	WEXP	
XBee 802.15.4 Pro SMA 5dBi	✓		X802P-SMA5	
XBee Digimesh Pro SMA 5dBi	✓		XDMP-SMA5	
XBee ZigBee Pro SMA 5dBi	✓		XZBP-SMA5	
XBee 868 SMA 4.5dBi with Expansion Board ¹			X868-SMA4-WEXP	
XBee 900 SMA 4.5dBi with Expansion Board ¹			X900-SMA4-WEXP	
LoRaWAN Module 868 with Expansion Board ¹			LW-SMA4-868-EXP	
LoRaWAN Module 433 with Expansion Board ¹			LW-SMA4-433-EXP	
LoRaWAN Module 900 with Expansion Board ¹			LW-SMA4-900-EXP	
Sigfox Module ²	✓		SF-SMA4-868	
WiFi Module 2 dBi with Expansion Board ¹			WIFI-SMA2-WEXP	
WiFi Module 5 dBi with Expansion Board ¹			WIFI-SMA5-WEXP	
GSM / GPRS Module		✓	WGPRS	
GPRS + GPS Module		✓	WGPRS - GPS	
3G Module		✓	W3G	



RFID 13.56 MHz / NFC module + antenna

Bluetooth Low Energy module



Wasmote 3G

Wasmote GPS module

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Model	Require Expansion Radio Board?	Direct connection to Wasmote	Ref.	Price
Bluetooth Module for device discovery ³ , 2 dBi antenna	✓		WBTS-SMA2	
Bluetooth Module for device discovery ³ , 5 dBi antenna	✓		WBTS-SMA5	
Bluetooth Low Energy Module, 2 dBi antenna	✓		BLE-SMA2	
Bluetooth Low Energy Module, 5 dBi antenna	✓		BLE-SMA5	
RFID 13.56 MHz / NFC Module + antenna*	✓		W1356	
GPS Module		✓	WGPS	
RS-232 Serial / Modbus Module, DB9 cable	✓		W232	

1.- The XBee 868, XBee 900, LoRaWAN and WiFi modules should always be connected to socket 1, so they are sold with the Expansion Board.

2.- Does NOT include Sigfox connectivity, the user must hire this service directly from Sigfox. Check network availability in your country.

3.- The Bluetooth module requires an SD card to save all data of discovered devices, see prices in the next section.

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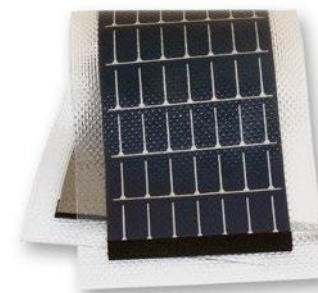
Power Options

Model	Features	Ref.	Price
6600mA·h battery ⁽¹⁾	Li-ion rechargeable	6041	
13 A·h ^{(1) (2)}	Non-rechargeable	6016	
26 A·h ^{(1) (2)}	Non-rechargeable	6022	
52 A·h ^{(1) (2)}	Non-rechargeable	6023	
Rigid solar panel	7 V – 500 mA	6020	
Flexible solar panel	7.2 V – 100 mA	6021	
220V - USB	USB connector option	6006	
International adapter	USB connector option	10280	
Car lighter - USB	USB connector option	6007	

1.- Each Waspnote always requires a battery, even if it is powered from an external power supply.
2.- This power option is not available for GPRS, GPRS+GPS, or 3G models.



Rigid Solar Panel 7V - 500mA



Flexible Solar Panel 7.2V - 100mA

We provide prices in USD to US customers. Please submit your RFQ, and we will provide you with the USD prices.

Accessories

Optional complements for Waspnote. Feel free to customize your Waspnotes!

Model	Features	Ref.	Price
SD card*	2 GB (5 cards pack)	WSD	
13.56 MHz / NFC card	5 units pack	10156	
13.56 MHz / NFC keyring	5 units pack	10157	
13.56 MHz / NFC sticker	5 units pack	10166	
OBD-II cable for CAN Bus Module	For connecting to compatible vehicles	OBD	

* There are many SD card models; the only model that Libelium can assure that works with Waspnote correctly is the model that Libelium distributes officially.



Now that you have configured your hardware, go to **Data** section to decide how to connect to the Cloud.



We provide prices in USD to US customers. Please submit your RFQ, and we will provide you with the USD prices.

Demo Kits

Waspnote P&S!

Waspnote OEM

Data

Support

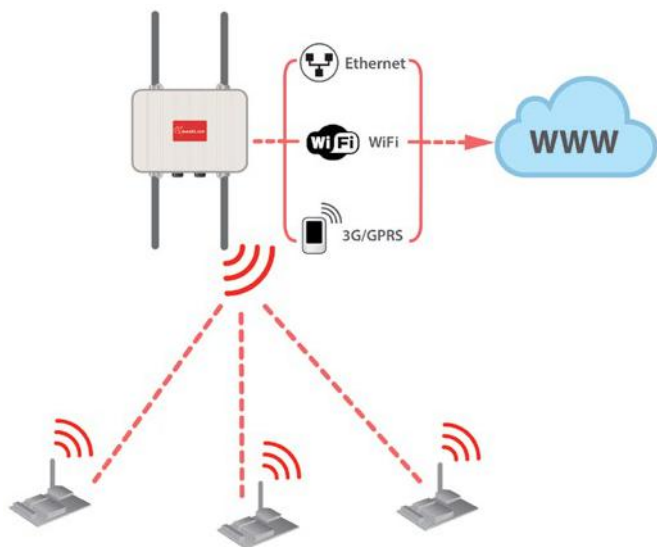
Orders

Extracting the data

The last point for configuring a sensor network is to decide the way to access the data. There are 3 alternatives:

Meshlium

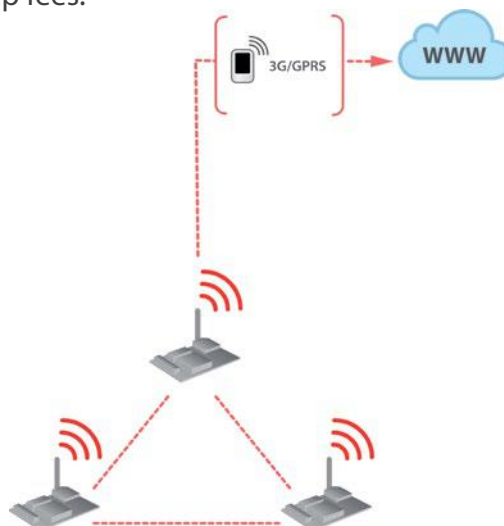
This is the most recommended option for outdoor networks since it is encased in a rugged, waterproof enclosure which protects it from the harshest conditions. It can receive, parse and store frames via ZigBee, 3G/ GPRS or WiFi in its local database. Meshlium can also forward sensor data directly to the Internet via Ethernet, Wi-Fi or 3G/GPRS protocols, depending on the connectivity options available in the area.



Waspnote GPRS / 3G / LoRaWAN / Sigfox

GPRS or 3G can be used in networks placed in difficult access locations, when using a single point of data collection alone or in combination with the other two options, using the cellular radio only to send SMS alert messages.

Sigfox and LoRaWAN are a special cases of cellular communications: LPWAN (Low Power, Wide Area Network). They are indicated for many applications (Smart Cities, Smart Parking, security, etc). Nodes send data directly to the back-end with low power consumption and cheap fees.



Waspnote Gateway

Connected by USB to a computer. This is recommended for applications of few nodes that are indoors or for testing while configuring the network. The Waspnote Gateway is also used to send commands to the sensor network, thus at least one unit should be purchased with the first kit of Waspnotes.



Demo Kits

Waspnote P&S!

Waspnote OEM

Data

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Orders

Meshlium

Meshlium Xtreme is the best Internet Gateway for Waspnote. It is a Linux based mesh router, totally modular and specially designed for harsh conditions without compromising flexibility in the installation. Meshlium can directly send sensor data from Waspnote to many 3rd party Cloud platforms. When ordering your Waspnotes factory-programmed, you can indicate the Cloud platform you want to work with and we will ship your devices ready to install and work, reducing your deployment costs.

Any scenario	<ul style="list-style-type: none"> • Communication <ul style="list-style-type: none"> - Waspnote → Meshlium: 802.15.4, ZigBee, Digimesh, 868/900 MHz - Meshlium → Internet: WiFi, Ethernet and 3G/GPRS • WiFi and Bluetooth interface detection to detect smartphones (traffic congestion applications) • Solar or battery powered
Fast configuration	<ul style="list-style-type: none"> • GUI to configure in a visual and easy way (includes factory presets to make installation even faster) • Integrated with 3rd party Cloud platforms, required agents installed by default in all Meshliums
Easy installation	<ul style="list-style-type: none"> • Special holders and brackets to install in street lights and building fronts • Elbow connectors included in all models to place antennas horizontally • External socket for SIM card
Easy maintenance	<ul style="list-style-type: none"> • Get the latest software version with just one click • Robust waterproof IP65 enclosure • Notifications buzzer



Demo Kits

Waspnote P&S!

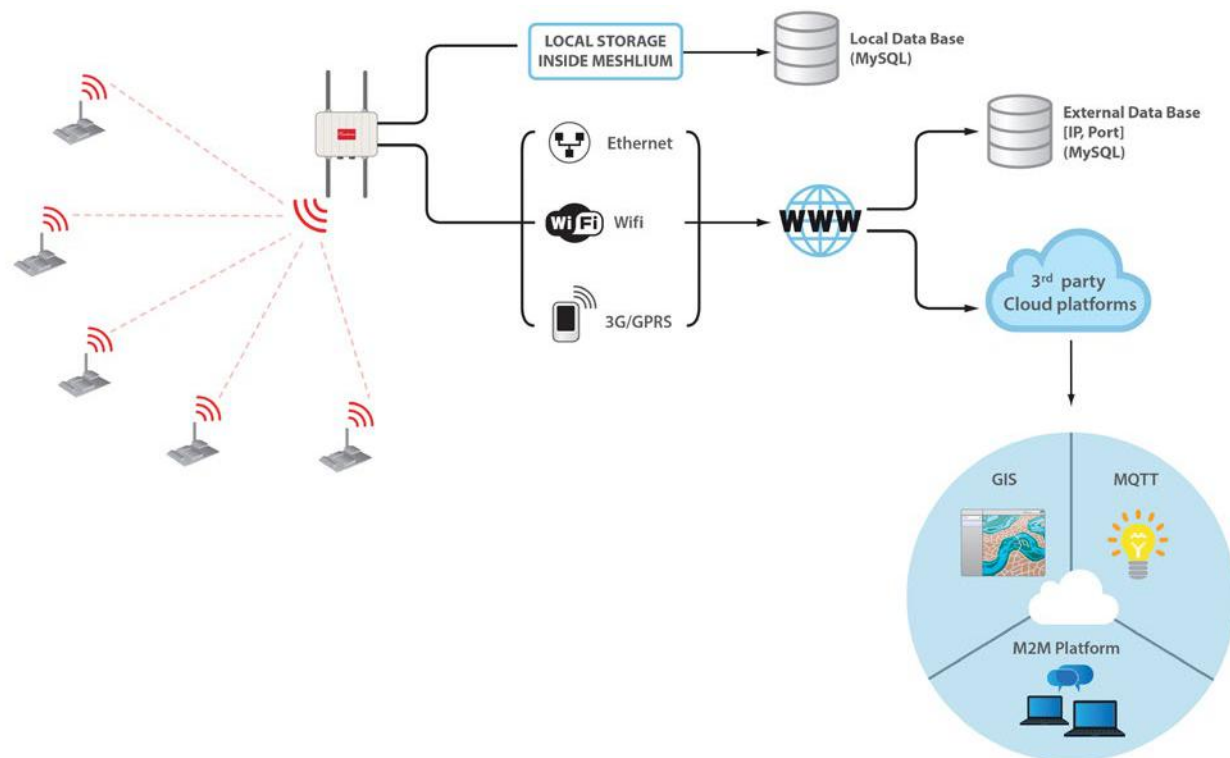
Waspnote OEM

Data

Support

Orders

Libelium has partnered with the best Cloud software solution providers to offer you all the necessary components to deploy Internet of Things (IoT), machine-to-machine (M2M) or Smart Cities projects with minimum time to market. Meshlium is able to send data to the Cloud in a transparent way:



Like Waspnote, Meshlium is highly modular. This section shows you step by step all the possible configuration options:

Step 1:
Model

Step 2:
Complements

Step 3:
Optional modules

Step 4:
Power supply
options

Demo Kits

Waspote P&S!

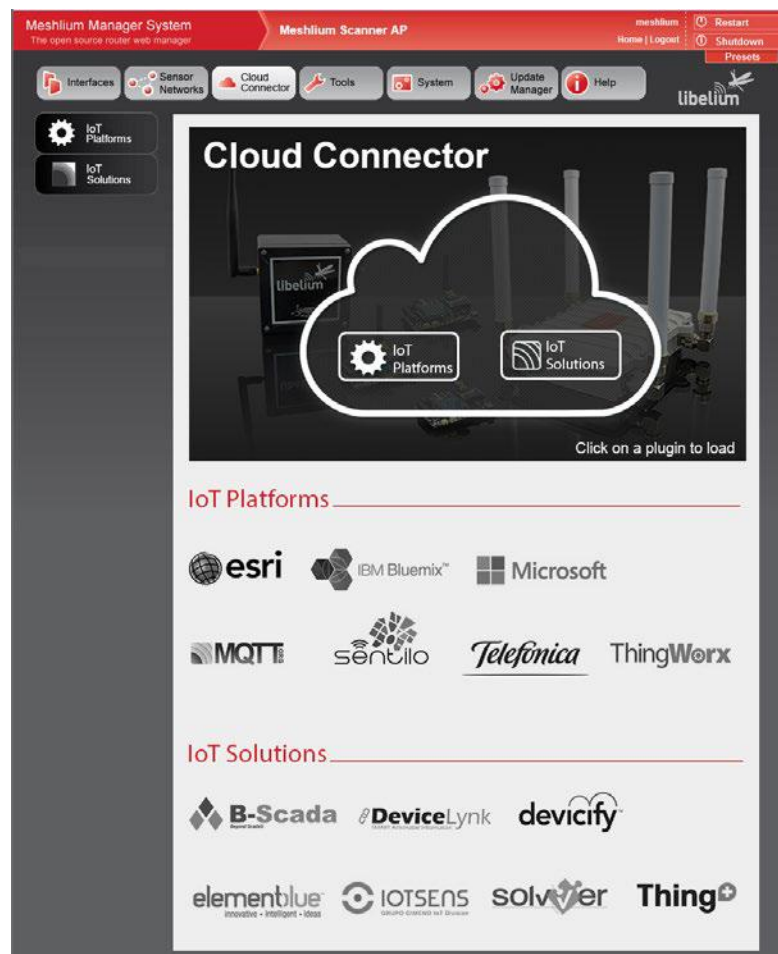
Waspote OEM

Data

Support

Orders

The Meshlium Manager System allows to configure easily the selected Cloud platform.*



Meshlium Manager System

*Meshlium software only includes the agent to connect to the Cloud platform. Cloud accounts sold separately.

Confidential Document / Version: v8.8 / Date: April 2016

This catalogue supersedes any previously released and is valid until publication of another to replace it. Catalogue for the new Waspote version, also called PRO or v1.2.

Demo Kits

Waspnote P&S!

Waspnote OEM

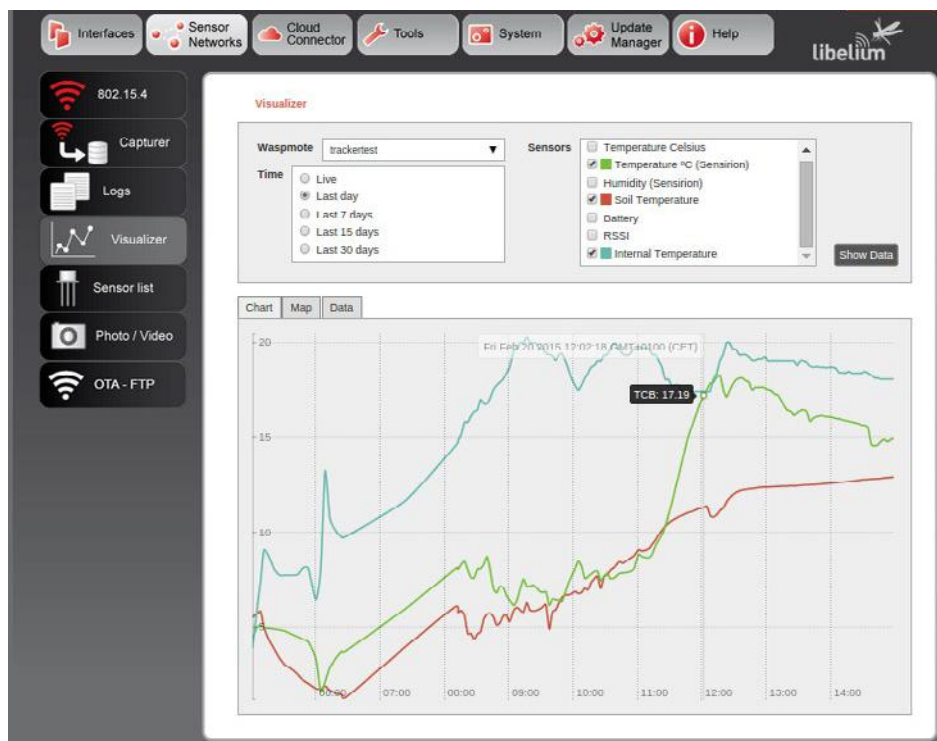
Data

Support

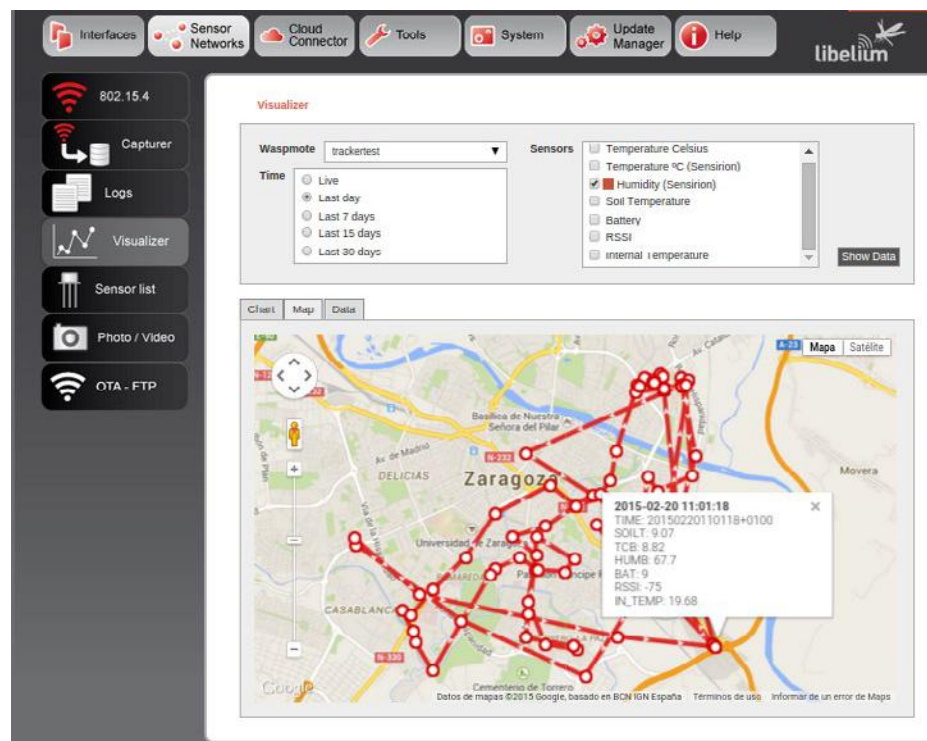
Orders

Meshlium Visualizer

This software feature allows to plot beautiful graphs with Meshlium. Meshlium Visualizer is only included in IoT Vertical Kits.



Meshlium Visualizer showing data series



Meshlium Visualizer geo-locating a moving Plug & Sense!

Demo Kits

Wasp mote P&S!

Wasp mote OEM

Data

Support

Orders

Meshlium Model	WiFi AP (2.4GHz)	WiFi Mesh (2.4GHz / 5GHz)	802.15.4 ZigBee Radio	LoRa Radio	3G/GPRS	WiFi Scans	Bluetooth Scans	Ref.	Price
Meshlium AP	✓							MAP	
Meshlium 3G-AP	✓				✓			M-3G	
Meshlium 802.15.4-PRO-AP	✓		✓					M802	
Meshlium Digimesh-PRO-AP	✓		✓					MDM	
Meshlium ZigBee-PRO-AP	✓		✓					MZ	
Meshlium 868-AP	✓		✓					M868	
Meshlium 900-AP	✓		✓					M900	
Meshlium LoRa-AP-868	✓			✓				MLoRa-868	
Meshlium LoRa-AP-900	✓			✓				MLoRa-900	
Meshlium 802.15.4-PRO-3G-AP	✓		✓		✓			M802-3G	
Meshlium Digimesh-PRO-3G-AP	✓		✓		✓			MDM-3G	
Meshlium ZigBee-PRO-3G-AP	✓		✓		✓			MZ-3G	
Meshlium 868-3G-AP	✓		✓		✓			M868-3G	
Meshlium 900-3G-AP	✓		✓		✓			M900-3G	
Meshlium LoRa-3G-AP-868	✓			✓	✓			MLoRa-3G-868	
Meshlium LoRa-3G-AP-900	✓			✓	✓			MLoRa-3G-900	
Meshlium 802.15.4-PRO-Mesh-AP	✓	✓	✓					MM802	

We provide prices in USD to US customers. Please submit your RFQ, and we will provide you with the USD prices.

Demo Kits

Waspnote P&S!

Waspnote OEM

Data

Support

Orders

Meshlium Model	WiFi AP (2.4GHz)	WiFi Mesh (2.4GHz / 5GHz)	802.15.4 ZigBee Radio	LoRa Radio	3G/GPRS	WiFi Scans	Bluetooth Scans	Ref.	Price
Meshlium Digimesh-PRO-Mesh-AP	✓	✓	✓					MMDM	
Meshlium ZigBee-PRO-Mesh-AP	✓	✓	✓					MMZ	
Meshlium 868-Mesh-AP	✓	✓	✓					MM868	
Meshlium 900-Mesh-AP	✓	✓	✓					MM900	
Meshlium 802.15.4-PRO-Mesh-3G-AP	✓	✓	✓		✓			MM802-3G	
Meshlium Digimesh-PRO-Mesh-3G-AP	✓	✓	✓		✓			MMDM-3G	
Meshlium ZigBee-PRO-Mesh-3G-AP	✓	✓	✓		✓			MMZ-3G	
Meshlium 868-Mesh-3G-AP	✓	✓	✓		✓			MM868-3G	
Meshlium 900-Mesh-3G-AP	✓	✓	✓		✓			MM900-3G	

Meshlium Model	WiFi AP (2.4GHz)	WiFi Mesh (2.4GHz / 5GHz)	802.15.4 ZigBee Radio	LoRa Radio	3G/GPRS	GPS	WiFi Scans	Bluetooth Scans	Ref.	Price
Meshlium Scanner AP	✓						✓	✓	MSCAN	
Meshlium Scanner 3G-AP	✓				✓		✓	✓	MSCAN-3G	
Meshlium Scanner 802.15.4-PRO-AP	✓		✓				✓	✓	MSCAN802	
Meshlium Scanner ZigBee-PRO-AP	✓		✓				✓	✓	MSCANZB	
Meshlium Scanner 868-AP	✓		✓				✓	✓	MSCAN868	
Meshlium Scanner 900-AP	✓		✓				✓	✓	MSCAN900	
Meshlium Scanner LoRa-AP-868	✓			✓			✓	✓	MSCANLoRa-868	
Meshlium Scanner LoRa-AP-900	✓			✓			✓	✓	MSCANLoRa-900	

Demo Kits

Waspnote P&S!

Waspnote OEM

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Orders

The following accessories are optional.

Module	Ref.	Price
220V AC adapter – battery / car lighter connector (12 V – 300 W)	M220	
Solar kit (12 V – 20 W): solar panel 20 W + 220 V inverter + battery charger	MSOLAR	
Directional Antennas for Meshlium Scanner*	MDA	

*This is a kit of 2 outdoors directional antennas (18 dB) for WiFi and Bluetooth, mounting kits, 2 m cables and adapters. The kit is specially indicated for Vehicle Detection applications because it enlarges the range area.



Directional antenna for Meshlium Scanner

Demo Kits

Waspnote P&S!

Waspnote OEM

Data

Support

Orders

Waspnote Gateway and cellular or LPWAN modules

Data extraction option	Ref.	Price
Waspnote Gateway 802.15.4-PRO SMA 2 dBi	WG802P-SMA2	
Waspnote Gateway 802.15.4-PRO SMA 5 dBi	WG802P-SMA5	
Waspnote Gateway Digimesh PRO SMA 2 dBi	WGDMP-SMA2	
Waspnote Gateway Digimesh PRO SMA 5 dBi	WGDMP-SMA5	
Waspnote Gateway ZB-PRO SMA 2 dBi	WGZBP-SMA2	
Waspnote Gateway ZB-PRO SMA 5 dBi	WGZBP-SMA5	
Waspnote Gateway 868 SMA 4.5 dBi	WG868-SMA4	
Waspnote Gateway 900 SMA 4.5 dBi	WG900-SMA4	
Waspnote Gateway LoRa SMA 868	WGLoRa-SMA4-868	
Waspnote Gateway LoRa SMA 900	WGLoRa-SMA4-900	
Waspnote Gateway Bluetooth Pro SMA 2 dBi	WGBTS-SMA2	
Waspnote Gateway Bluetooth Pro SMA 5 dBi	WGBTS-SMA5	
Waspnote Gateway Bluetooth Low Energy SMA 2 dBi	WGBLE-SMA2	
Waspnote Gateway Bluetooth Low Energy SMA 5 dBi	WGBLE-SMA5	
Waspnote GSM/ GPRS module	WGPRS	

Data extraction option	Ref.	Price
Waspnote GPRS + GPS module	WGPRS-GPS	
Waspnote 3G module	W3G	
LoRaWAN Module 868 with Expansion Board	LW-SMA4-868-EXP	
LoRaWAN Module 433 with Expansion Board	LW-SMA4-433-EXP	
LoRaWAN Module 900-915 with Expansion Board	LW-SMA4-900-EXP	
Waspnote Sigfox module*	SF-SMA4-868	

**Does NOT include Sigfox connectivity, the user must hire this service directly from Sigfox. Check network availability in your country.*



Now that you know how to extract the Data go to the **Support** section and see our training formulas.



Demo Kits

Wasmote P&S!

Wasmote OEM

Data

Support

Orders

Getting support

Wasmote Plug & Sense! devices factory-programmed:

If you want to save time and development costs you do not need to program anything, we can ask you about the requirements and ship your devices factory-programmed and ready to Plug & Sense!.

Plug & Sense! Programming Service (includes the creation of up to 3 different codes and the upload them into 5 Plug & Sense! nodes)

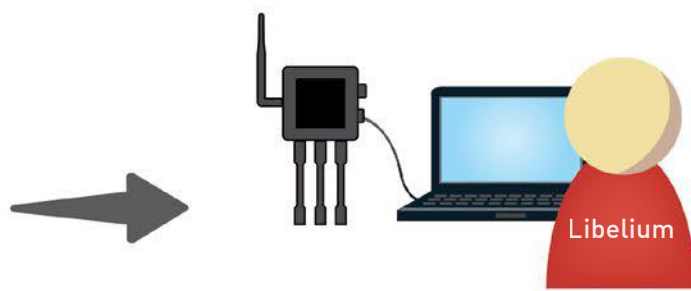
PROG

Additional Nodes Upload Service

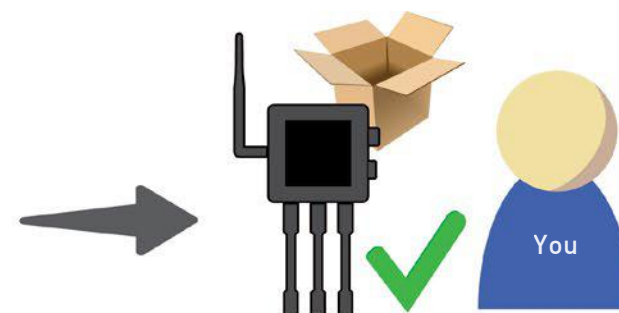
PROG-UPL



Fill the features of code in the form



We program your devices





You receive ready-to-install nodes

Note: This service is available for Plug & Sense! nodes with the following radios: XBee, 3G, GPRS and GPRS+GPS.



Support options

Programming Waspnote on your own requires an advanced level in C++ and object oriented coding. Our [Development site](#) shows 400+ code examples, tutorials and technical guides. Do not worry if you are not a skilled programmer yet, we offer different training formulas so that you can achieve easily a good level.

 Forum	 Technical Consultancy	 Training Courses	 Free Overview Webinars	 Special Projects Consultancy
<ul style="list-style-type: none"> • Answered once a day in best-effort way by our engineers. • Online: text. • Useful for: <ul style="list-style-type: none"> - Solve doubts about API usage, compilation problems, IDE options or basic questions. - Report bugs. - Tier-1 troubleshooting. - Stay up to date about new API releases, tutorials, code examples, etc. 	<ul style="list-style-type: none"> • Arranged in 1 hour time-slot. • Online: text, screen share, mic and webcam. Interactive. • Useful for: <ul style="list-style-type: none"> - Solve urgent questions that cannot wait forum timelines debug your code. - Guide you step by step. - Help you to design a system architecture. - Improve your program to reduce power consumption, make it more efficient, etc. 	<ul style="list-style-type: none"> • Celebrated every quarter during 3 days / 21 hours. • Face-to-face. • Useful for: <ul style="list-style-type: none"> - Learn step by step how to program Waspnote. - Achieve an advanced programming level in just 3 days. 	<ul style="list-style-type: none"> • Once a month, 1.5 h. • Online master class: text, screen share, mic and webcam. • Useful for: <ul style="list-style-type: none"> - Improving your skills on Waspnote on specific topics such as how to program the device, sensor reading and data transmission. - Those that cannot attend a face-to-face training course or want to learn by themselves with the documentation online. 	<ul style="list-style-type: none"> • On request. <p>Even although we have a very modular and complete solution, sometimes you need something else...integrating a new sensor, connect with a specific cloud platform, adapt the board for a vertical application, etc. In these cases, we arrange a meeting with our Project Manager to gather the requirements and after that he analyzes with the R&D team the viability of the solution and returns you an implementation proposal.</p>
Free	2 hours 3 hours 5 hours 10 hours	TC-2 --> Free ¹ TC-5 --> TC-10 -->	Training course Training course + Waspnote Starter Kit (valued at 199 €)	Free

1.- For customers that acquired an Evaluator Kit, 3 hours of Technical Consultancy and 1 place at a Training Course are included.

We provide prices in USD to US customers. Please submit your RFQ, and we will provide you with the USD prices.

Demo Kits

Waspnote P&S!

Waspnote OEM

Data

Support

Orders



Calendar - Libelium Training Courses 2016

Find out now the dates of the next training courses and choose the one that suits the best for you:

January							February							March							April						
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa
27	28	29	30	31	1	2	31	1	2	3	4	5	6	28	29	1	2	3	4	5	27	28	29	30	31	1	2
3	4	5	6	7	8	9	7	8	9	10	11	12	13	6	7	8	9	10	11	12	3	4	5	6	7	8	9
10	11	12	13	14	15	16	14	15	16	17	18	19	20	13	14	15	16	17	18	19	10	11	12	13	14	15	16
17	18	19	20	21	22	23	21	22	23	24	25	26	27	20	21	22	23	24	25	26	17	18	19	20	21	22	23
24 31	25	26	27	28	29	30	28	29	1	2	3	4	5	27	28	29	30	31	1	2	24	25	26	27	28	29	30

May							June							July							August						
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7	29	30	31	1	2	3	4	26	27	28	29	30	1	2	31	1	2	3	4	5	6
8	9	10	11	12	13	14	5	6	7	8	9	10	11	3	4	5	6	7	8	9	7	8	9	10	11	12	13
15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16	14	15	16	17	18	19	20
22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	2	23	21	22	23	24	25	26	27
29	30	31	1	2	3	4	26	27	28	29	30	1	2	24 31	25	26	27	28	29	30	28	29	30	31	1	2	3

September							October							November							December						
Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa	Su	Mo	Tu	We	Th	Fr	Sa
28	29	30	31	1	2	3	25	26	27	28	29	30	1	30	31	1	2	3	4	5	27	28	29	30	1	2	3
4	5	6	7	8	9	10	2	3	4	5	6	7	8	6	7	8	9	10	11	12	4	5	6	7	8	9	10
11	12	13	14	15	16	17	9	10	11	12	13	14	15	13	14	15	16	17	18	19	1	12	13	14	15	16	17
18	19	20	21	22	23	24	16	17	18	19	20	21	22	20	21	22	23	24	25	26	18	19	20	21	22	23	24
25	26	27	28	29	30	1	23 30	24 31	25	26	27	28	29	27	28	29	30	1	2	3	25	26	27	28	29	30	31

-  Waspnote Free Overview Webinars
-  Waspnote Face-to-Face Workshops



Now that you have chosen a Support option go to the **Orders** section to place your order.



Demo Kits

Waspnote P&S!

Waspnote OEM

Data

Support

Orders

Order placement

To place an order, you must complete the form available in: http://www.libelium.com/order_form and send it back to your sales agent.

If sales agent has not yet been assigned, please send it back to: sales@libelium.com

You can consult our Terms & Conditions in: <http://www.libelium.com/legal>. Should you have any doubt, please, contact our sales department.

- E-mail: sales@libelium.com
- Tlf: +34 976 54 74 92

Order Form





www.libelium.com

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