



Plug & Sense! Smart Cities PRO

The main applications for this Plug & Sense! model are noise maps (monitor in real time the acoustic levels in the streets of a city [LeqA in dBA]), air quality, waste management, smart lighting, etc.

Plug & Sense! offers you the highest flexibility to connect to any sensor or device through your own programming. If you need to scale from zero, this is your best option in the market. You can use Plug & Sense! for any use case linked to Smart Cities, Agricultural and Environmental projects.

CERTIFICATIONS

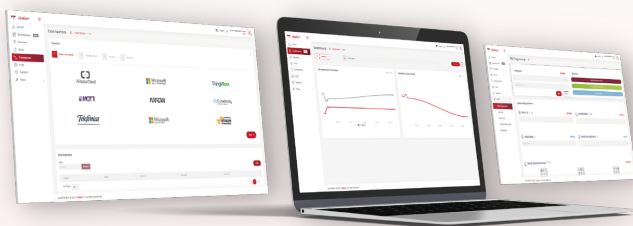


SENSORS

Noise / Sound Level Sensor (dBA / LeqA) + Calibration Tests
 Particle Matter (PM1 / PM2.5 / PM10) – Dust Sensor
 Carbon Monoxide (CO) [Calibrated] (low concentrations)
 Carbon Dioxide (CO2) [Calibrated]
 Molecular Oxygen (O2) [Calibrated]
 Ozone (O3) [Calibrated]
 Nitric Oxide (NO) [Calibrated] (low concentrations)
 Nitric Dioxide (NO2) [Calibrated] (high accuracy)
 Sulfur Dioxide (SO2) [Calibrated] (high accuracy)
 Ammonia (NH3) [Calibrated] (low and high concentrations)
 Methane (CH4) [Calibrated] – and other combustible gases
 Hydrogen Sulfide (H2S) [Calibrated]
 Temperature
 Humidity
 Atmospheric pressure
 Luminosity (Luxes Accuracy) for Smart Lighting
 Ultrasound (distance measurement)

Libelium Cloud

A device management platform that allows you the complete management of your IoT Project end to end. Store, visualize and analyze the data received. Send the data to the main cloud platforms on the market.



TECHNICAL FEATURES

MECHANICAL SPECIFICATIONS

IK Grade	IK08
IP Grade	IP65
Dimensions	124 x 142 x 85 mm (without sensors)
Operating temperature	-30°C to +70°C (Temporary temperatures. Regular usage -20°C + 60°C)
Material	Polycarbonate
Sealing	Polyurethane
Cover screws	Stainless steel
Rated insulation voltage AC	690 V
Rated insulation voltage DC	1000 V
Heavy metals-free	Yes
Weatherproof	UL 746 C
Approximated weight	800 g

GENERAL SPECIFICATIONS

Sensor sockets	6
Power sockets	2
Security	Multilayer encryption (HW + SW)
OTAP	Yes
Visual indication	Yes
Magnetic reset	Yes
Accessories	Extension cords, solar panels, power options...
Cloud connectors	More than 50 cloud services through Libelium Cloud

CONNECTIVITY

Wireless communications	LTE CAT-4, NB-IoT / Cat-M, LoRaWAN, Sigfox, 802.15.4, WiFi, ZigBee, 868, 900
GNSS	Yes
Antenna	External and internal (depending on radio module)
SIM card	Optional through external connector
Other	RS-485, RS232, 4-20mA, Modbus and CAN bus

POWER SPECIFICATIONS

Power supply maximum voltage	USB Vmax=7V. Solar panel Vmax 18V
USB charging voltage	5V
Solar panel charging voltage	6 - 12 V
Battery	6,6 A·h
Sleep mode	36 uA
Charging options	USB, solar panel (up to 18V) and External Battery Module
Battery charging current from USB	100 mA in batches
Battery charging current from solar panel	300 mA (max current input)
Maximum current from any digital I/O pin	40 mA

SENSOR	SOCKET	A	B	C	D	E	F	REF.
Temperature, Humidity and Pressure		X	X	X		X	X	9370-P
Noise Level Sensor		X						NLS
Noise Level Sensor v2		X						NLS v2
Noise Level Sensor Class 2 Indoor for Smart Cities PRO		X						NLS-C2-I-SCP
Noise Level Sensor Class 2 Outdoor for Smart Cities PRO		X						NLS-C2-O-SCP
Carbon Monoxide (CO) for low concentrations (Calibrated) *			X	X			X	9371-LC-P
Carbon Dioxide (CO2) (Calibrated) * **			X	X			X	9372-P
Oxygen (O2) (Calibrated) *			X	X			X	9373-P
Ozone (O3) (Calibrated) *			X	X			X	9374-P
Nitric Oxide (NO) for low concentrations (Calibrated) *			X	X			X	9375-LC-P
Ammonia (NH3) for low concentrations (Calibrated) *			X	X			X	9376-HA-P
Sulfur Dioxide high accuracy (SO2) (Calibrated) *			X	X			X	9377-HA-P
Ammonia (NH3) for high concentrations (Calibrated) *			X	X			X	9378-LC-P
Ammonia (NH3) for high concentrations (Calibrated) *			X	X			X	9378-HC-P
Methane (CH4) and Combustible Gas (Calibrated) ***			X	X			X	9379-P
Hydrogen Sulfide (H2S) (Calibrated) *			X	X			X	9381-P
Particle Matter (PM1 /PM2.5 / PM10) - Dust *					X			9387-P
Luminosity (Luxes accuracy)		X	X	X		X	X	9325-P
Ultrasound		X	X	X		X	X	9246-P

*Calibrated gas sensors are manufactured once the order has been placed to ensure maximum durability of the calibration feature. Manufacturing process and delivery may take from 4 to 6 weeks. Lifetime of calibrated gas sensors is 6 months working at maximum accuracy. We strongly encourage our customers to buy extra gas sensor probes to replace the original ones after that time to ensure maximum accuracy and performance.

*This sensor includes all the needed accessories (sensor, windshield, enclosure, cables, mounting kit, roof, etc.)

**Due to high power requirements, these sensors cannot work at the same time in the same Plug & Sense!



Trust our knowledge

More than 15 years of experience in IoT support us.



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