



## Sound Monitor

Device developed to monitor noise levels in acoustically saturated zones and sound restricted zones in order to take actions to minimize the possible consequences of prolonged exposure.

## DESCRIPTION

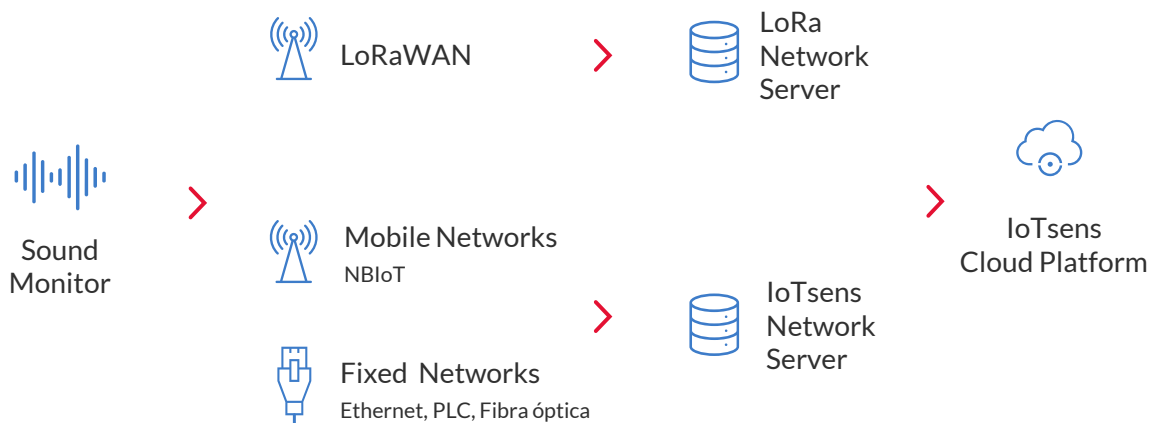
The sensor can monitor noise levels due to its integrated microphone. It can analyze the surrounding ambient sound A-weighted, in the audible frequency spectrum for the human ear, showing the collected data in dBA. This information is essential in acoustically saturated zones or areas with restrictions on noise levels. The sensor measures the noise level during a configurable time, determined by default in 10 minutes, obtaining as registered variables LAeq, LAmax, LAmin, LAp (01-10-50-90-99).

The device has been developed based on the guidelines set out in Directive 2002/49 / CE of the European Parliament and of the Council, of June 25, 2002 and Law 37/2003 of November 17 published in the BOE of Spain. The purpose of this law is to regulate noise pollution to avoid and, where appropriate, reduce the damage that it may cause to human health, property, or the environment.

## BENEFITS

- > Prevention of exposure to high noise levels through sound monitoring.
- > Reduction of negative health effects and improvement of people's well-being (cardiovascular diseases, insomnia, stress, psychological problems).
- > Application in open and closed spaces, allowing a detailed control of the sound activity in each area.
- > Control of regulatory compliance.

## CONNECTIVITY



## PRODUCT

Dimensions	200 x 120 x 60 mm
Weight	610 g
Temperature Range	-40 °C to +65 °C
Housing	IP protection: 65 (UV resistant polycarbonate)
Internal Storage	16 MB
Available Power Supply	PoE: Passive power over Ethernet: 12/24 VDC Direct Current: Power supply with 12/24 VDC

## SENSORS

Sound	Measure range: 30 to 120 dBA Frequency range: 20Hz to 12,5 KHz Accuracy: ±0,5 dBA Response time: 500 ms
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## AVAILABLE COMMUNICATIONS

Ethernet	Standard: IEEE 802.3 100Base-TX Cable: 4 twisted pairs (category 5 UTP) PoE: Passive mode (4-5 positive, 7-8 negative) 12/24 VDC
WiFi	Standard: IEEE 802.11 b/g/n Bands: 2.4Ghz Power transmission: +16dBm Sensitivity: -98 dbM (802.11b, 1Mbps)
LoRaWAN	EU868 region Specification Version 1.0.2 Regional Parameters 1.0.2rB
NarrowBand IOT	3GPP Rel-14 Compliant Bands: Global (B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B26/B28/ B66/B70/B71) Bandwidth: Uplink: 150Kbps Downlink:126Kbps Power consumption: PSM / eDRX

## DEVICE MEASUREMENTS

$L_{Aeq}$	Essentially, an average noise level. More specifically, it shows the equivalent amount of energy in each period for a fluctuating source as if it were a steady continuous noise level.
$L_{Amax}$	Shows the highest noise level reached in each period.
$L_{Amin}$	Shows the lowest noise level reached in each period.
$L_{Ap\#\#}$	Where p may be anything from 1 to 99, is that noise level exceeded for n% of the measurement time.

## IOTSENS PLATFORM

Possibility of integrating all sensors into the IoTsens platform for easy management of installed devices, both IoTsens devices and third-party.

Open	We use components based on free software and communication mechanisms based on open protocols.
Integrable	We provide the necessary tools for bidirectional integration with third-party platforms.
Scalable	Horizontal and transversal platform capable of evolving and being scalable thanks to the organization of each of its layers.
Secure	We offer fine granularity regarding permissions and assigned resources, which allows you to control which resources are accessible at any time.
Modular	It is composed of different work modules, which makes it easy to evolve and customize.
Big Data & Business Intelligence capabilities	Real-time analysis, heavy calculations and machine learning processes that support the determination of KPIs.
Customizable	With the client's corporate identity. It can be configured for integration with proprietary systems such as ERP or MES, guaranteeing privacy and security in data processing.

By integrating this device into the IoTsens Cloud platform, information on the following parameters is obtained:

$L_{Aeq,h}$	It shows the equivalent amount of energy in an hour for a fluctuating source as if it were a steady continuous noise level
$L_{Aeq,d}$	It shows the equivalent amount of energy in a day for a fluctuating source as if it were a steady continuous noise level
$L_{Ad}$	Long-term average noise levels defined as from 07am to 7pm for day period. Note: The exact hours of the periods may be chosen differently by individual EU member states
$L_{Ae}$	Long-term average noise levels defined as from 07pm to 11pm for evening period. Its a 2002 European standard used to express noise level over an entire day. It imposes a penalty on sound levels during evening and it is primarily used for noise assessments in different areas. Note: The exact hours of the periods may be chosen differently by individual EU member states
$L_{An}$	Long-term average noise levels defined as from 11pm to 07am for evening period. Its a 2002 European standard used to express noise level over an entire day. It imposes a penalty on sound levels during night and it is primarily used for noise assessments in different areas. Note: The exact hours of the periods may be chosen differently by individual EU member states
$L_{Aден}$	The day-evening-night noise level or $L_{Aден}$ is a 2002 European standard to express the registered noise level over an entire day.

