IOTSENS
Gimeno IoT division

sound level monitor

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 Zone Acoustic Saturated (SAZ) 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 L_{Aeq}, L_{Amax}, L_{Amin}, L_{Ap} (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.

IOTSENS PLATFORM

Through the integration of this device in the IoTsens Cloud platform, the software offers the hourly and daily data of these variables ($L_{Aeq,h}$, $L_{Aeq,d}$). Added to these variables, the application shows the level recorded in the day period (L_{Ad}), evening period (L_{Ae}), night period (L_{An}) and the day–evening–night noise level (L_{Aden}) to express noise level over an entire day. With the control of these three variables, we will know if we are complying with the existing regulation.

BENEFITS

- Prevention of exposure to high levels through control of ambient sound level.
- Monitoring of noise levels in both open spaces and closed spaces, allowing a detailed knowledge of the sound activity in a certain area.
- Normative compliance Control
- Improvement of the health and well-being of people.

VARIABLES INFORMATION

Variable	Definition
L_{Aeq}	is 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
$L_{Aeq,h}$	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_{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.
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. 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. Note: The exact hours of the periods may be chosen differently by individual EU member states
L_{Aden}	The day–evening–night noise level or L_{Aden} is a 2002 European standard to express noise level over an entire day. It imposes a penalty on sound levels during evening and night and it is primarily used for noise assessments in different areas

TECHNICAL SPECIFICATIONS

PRODUCT

Dimensions:	200x120x60mm
Weight	610g
Temperature range:	-40ºC to + 65ºC
Housing[1]:	- IP protection: 65 - Material: POLYCARBONATE (UV resistant)
Internal storage:	16 MB

SENSORS

Sound sensor	- Measure range: 30-120 dBA - Frequency range: 20Hz to 12,5 Khz - Precision: ±0.5dBA - Answer time: 500ms

AVAILABLE COMMUNICATIONS

Ethernet	Standard: IEEE 802.3 100Base-TX Cable: 4 pares trenzado (categoría 5 UTP) POE: Passive mode (4-5 positive, 7-8 negative) 12/24 VDC Bandwidth: 10/100 Mbps
WiFi	Standard: IEEE 802.11 b/g/ndbm Bands: 2.4Ghz Power transmission: +16dBm Sensitivity: -98 dbM (802.11b, 1Mbps)
LoRaWAN	Module RHF76-052 Region EU868 Specification Version 1.0.2 Regional Parameters 1.0.2rB
NarrowBand IOT	Module SIM7020G (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

AVAILABLE POWER SUPPLY

PoE (main)	Passive power over Ethernet: 12/24 VDC
Direct Current	Power supply with 12/24 VDC

PROPOSED ARCHITECTURE