

Automated Noise, Temperature, Relative Humidity Monitoring



Features

- 2 high quality sensors tracking 3 parameters
- High performance across the 30 .. 130dB interval
- Reliable open source hardware & software
- Arduino compatible
- Integrated WiFi Internet connectivity
- USB port for power, debug and configuration
- Direct and Cloud data access via API
- IOT / Internet of Things
- Low power consumption
- Ultra low cost

Applications

- Industrial Noise Monitoring
- Low cost Automated Monitoring
- Smart Cities

Description

Designed for mass deployment to generate high resolution noise maps across industrial production facilities or in cities to map noise levels at street level. With the built in Wifi Connectivity, the device will report all measurements to the uRADMonitor servers in real time.

It is an ultra low cost device, where all its building blocks have been cost optimised except for one: its quality.

The design is open source, with complete hardware and software details publicly available on Github. It comes pre-programmed, but further modifications on its software are possible using Arduino. By default, all measurements are sent to the uRADMonitor servers, and are accessible with the API or can be viewed online. This makes it convenient when specific customisations are required on the client side.

The infrastructure behind this sensor is the powerful uRADMonitor network - a global array of interconnected monitoring stations, focused on continuous Environmental Surveillance.

uRADMonitor BUZZ

Industrial grade noise sensor

Sensors

The uRADMonitor BUZZ is designed as an ultra low cost Noise meter with a high precision digital sound sensor and an additional MEMS sensor to read temperature and humidity. The sensitive electronics is enclosed in a bell shape container to protect it from the elements if used outdoors. The device connects to your wireless Internet Router via WiFi, to send the readings online.

| Sensor | Parameter | Minimum value | Maximum value | Absolute Accuracy |
|----------------------|-------------|---------------|---------------|-------------------|
| MEMS | Temperature | -40 °C | +125 °C | ± 0.3°C |
| | Humidity | 0% RH | 100% RH | ± 2 % |
| Digital Noise sensor | Noise level | 30dB | 130dB | ± 3 % |

Specification

| Parameter | uRADMonitor BUZZ |
|-------------------------|---|
| Internet connection | WLAN connectivity to WiFi Internet Router |
| Standards | WLAN 2.4GHz IEEE 802.11 b/g/n |
| Wireless frequencies | 2.400–2.4835 GHz ISM band |
| Modem Chip | Espressif esp8266 |
| Certifications | CE, FCC |
| Antenna connector | PCB antenna |
| Enclosure Protection | IP53 . Safe to use outdoors and in wet environments |
| Supply Voltage | micro USB 5V |
| Dimensions | Compact size of 85x44x20 mm |
| Weight | 50g |
| Mounting | fixed. Distance between center of fixing holes 75mm |
| Recommended Use Ratings | Temperature: -20°C to +65°C Humidity: 0RH to 95RH |

Usage guide

- **Power supply**

The BUZZ uses a standard micro USB connector that is used to power the unit with a regular phone charger. The unit takes 5V to run.

- **Outdoor use and exposure to elements**

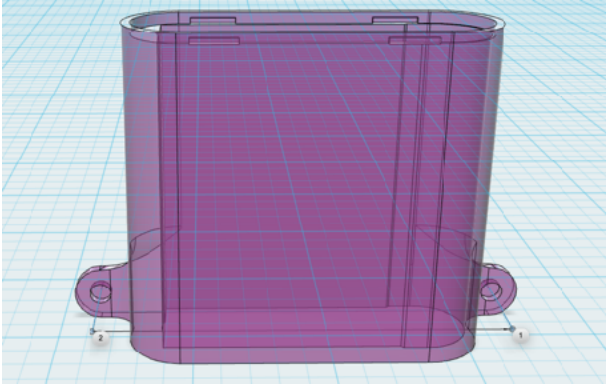
The unit comes in a plastic enclosure that protects the sensitive electronics from the elements. It can be directly installed outdoors. Make sure the USB connector faces down, so no rain can get inside. Do not cover the air circulation holes.

- **Precautions**

uRADMonitor BUZZ

Industrial grade noise sensor

Do not expose the device to a large amount of dust such as in the woodworking centers. Do not expose the appliance to solvents or to a large amount of concentrated vapours of chemicals (acetone, paints, alcohol, butane, propane, etc.), because the sensors can wear out, or the measurements may become inconclusive. Do not expose the apparatus to mechanical shocks. Wherever possible, mount the appliance in a vertical position to extend the life of the built-in fan mechanisms.



•Installing the unit

For mounting, use the two holes in the housing bracket. Ensure that you properly connect the power cord and secure it against vibration where necessary. If your BUZZ has a transparent resin case, screw carefully because the case is brittle. The distance between the center of the fixing holes is 75mm.

Data access

uRADMonitor is designed for easy and open data access. The data can be accessed in two ways:

- **Local access**

Applies where the uRADMonitor unit is part of a LAN network. The uRADMonitor unit serves an internal webpage accessible via port 80. To access the content open the unit's IP in your LAN network on a computer or a phone. The webpage served is as follows.

The JSON link points to a JSON formatted data source, that can be polled periodically to access the uRADMonitor unit readings. As this is done directly by connecting to the uRADMonitor unit, the server compensation layer is not used, so you would receive the raw readings. This is not the preferred way, and additional compensation must be implemented (eg. Temperature offset to compensate for internal heating, other corrections, etc). This functionality is offered rather for debugging and decentralized operation in critical situations such as server failure or malfunction.

- **Data access via the Server RESTful API**

This is the preferred data access method. REST API does not require the client to know anything about the structure of the API. Rather, the server needs to provide whatever information the client needs to interact with the service. An HTML form is an example of this: The server specifies the location of the resource, and the required fields. The browser doesn't know in advance where to submit the information, and it doesn't know in advance what information to submit. Both forms of information are entirely supplied by the server. Lookups should use GET requests. PUT, POST, and DELETE requests should be used for creation, mutation, and deletion.

The API is called for both directions of data transfer (upload and download). The uRADMonitor devices use the API to upload their measurements to the server, for further processing and storage in the database. The API is then used to access data by the frontend, the mobile app or third party systems that need the uRADMonitor data.

Warranty

uRADMonitor SMOGGIE is covered by a 12 months warranty for any defects in material or workmanship, under normal use.