MAGNASCI

uRADMonitor® **SENSIGAS**

Low gas concentration digital sensor

Temperature, Relative Humidity, 1x Custom Gas cell of choice:

O_3, H_2S, SO_2, NO_2 or CO (a single cell is supported)

Features

- 2 high quality sensors tracking 3 air parameters
- 1PPB Calibrated Electrochemical Gas Sensor
- 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

Applications

- Gas traces detection
- Low cost Automated Monitoring
- Home monitoring
- Citizen science
- Smart Cities

Description

With the built-in Wifi Connectivity, SENSIGAS will measure and report the gas concentration automatically. By default it comes with one gas sensor preinstalled, of your choosing when ordering the SENSIGAS sensor. The following gases are currently supported: O_3, H_2S, SO_2, NO_2, CO. The gas cell is calibrated and with digital output. It has 1PPB resolution for gases, so it is capable of detecting even the slightest changes in ambient air composition

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 for the classroom, for workshops or citizen science projects.

The uRADMonitor® network is a global array of interconnected monitoring stations, focused on continuous Environmental Surveillance. Its purpose is to generate fully transparent open data, used to assert the quality of our environment. The uRADMonitor® **SENSIGAS** data is accessible in real time via an API interface directly from the uRADMonitor® cloud.

Sensors

The uRADMonitor® **SENSIGAS** is designed as a low cost IOT Environmental detector. The device connects to your wireless Internet Router via WiFi, to send the readings online.

Sensor	Parameter	Resolution	Minimum value	Maximum value *	Absolute Accuracy
MEMs	Temperature	1 °C	-40 °C	+85 °C	± 1°C
	Humidity	1 %RH	0% RH	100% RH	± 2 %
Electrochemical sensor	H_2S	1ppb	0 ppm	1 ppm	± 10 %
	O_3	1ppb	0 ppm	1 ppm	
	SO_2	1ppb	0 ppm	1 ppm	
	NO_2	1ppb	0 ppm	1 ppm	
	CO	1ppb	0 ppm	10 ppm	

* In some cases we can provide custom detection intervals. Contact us for details!

Specification

Parameter	uRADMonitor® SENSIGAS
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 certifications	CE, FCC
Size	57x44 (64 with brackets)x 60 and 125grams
Enclosure Protection	IP65
Supply Voltage	micro USB 5V
Recommended Use Ratings	Temperature: -20°C to +65°C Humidity: 0RH to 95RH

Usage guide

- **Power supply**

The SENSIGAS 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**

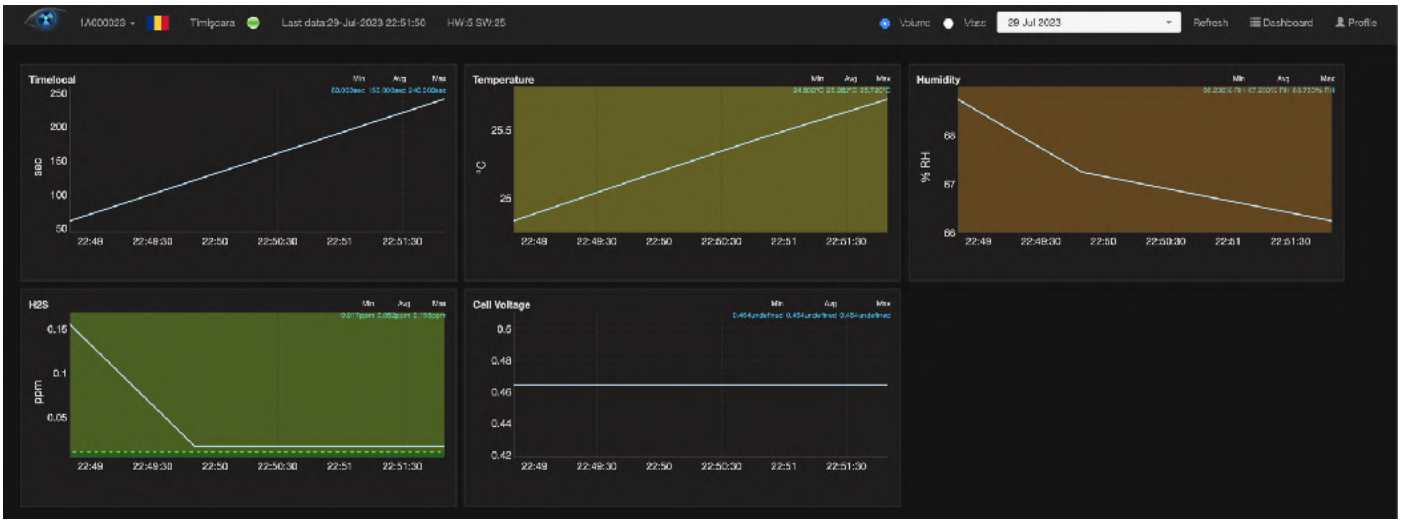
Do not expose the device to a large amount of dust such as in the woodworking centers. Do not expose theappliance to solvents or to a large amount of concentrated vapors of chemicals (acetone, paints, alcohol, butane, propane, etc.), because the sensors can wear out, or the measurements may become inconclusive. 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 SENSIGAS sensor has a transparent resin case, screw carefully because the case is brittle.

Data access

uRADMonitor® is designed for easy and open data access. The SENSIGAS device only needs to be connected to the power supply and to the WIFI network and the data will be immediately available - here's dashboard-04:



Picture: uRADMonitor Dashboard-04, free visualisation tool located at
https://www.uradmonitor.com/tools/dashboard-04/?open=1A000023

The data sets can be accessed directly, for display in third-party software applications, for integration with other systems (Home Assistant, Alexa, etc.) or for display on information panels - uRADMonitor® unit installed in Bucharest:

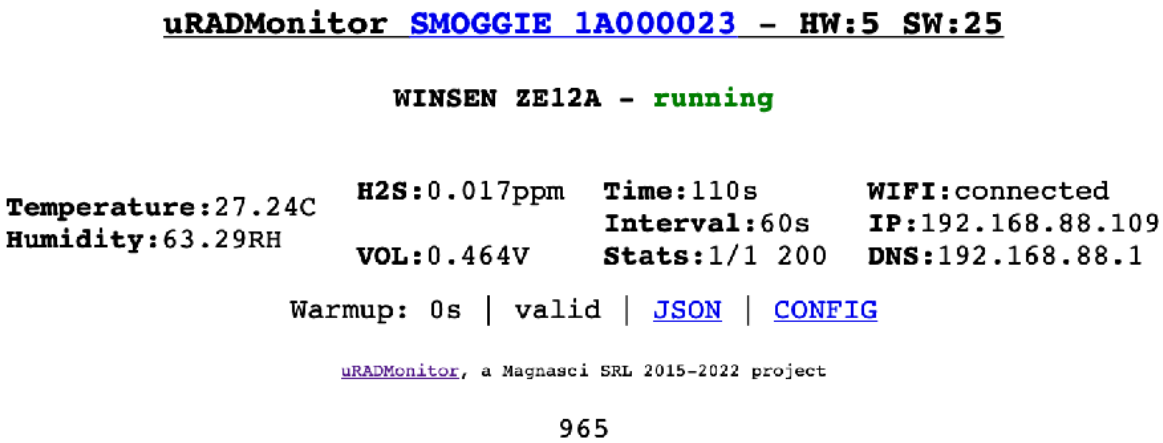
Picture: Public display showing real time

uRADMonitor® sensor data in Bucharest

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:



Picture: SENSIGAS offers an embedded webserver for config, debug and local direct data access

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 decentralised operation in critical situations.

- **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. 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 data.
To use the API, please refer to the dedicated manual: https://www.uradmonitor.com/api

For questions regarding the use of the API you can contact us at support@uradmonitor.com

The use of uRADMonitor® devices and the data sets generated by them can only be done in compliance with the general terms of use (TOS) presented on our website.

Warranty

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

See Also: