

Temperature, Barometric pressure, Relative Humidity, Volatile organic compounds (VOC), Particulate matter PM2.5, and Alpha, Beta, Gamma/x-ray radiation.



### Features

- Portable unit tracking 6 air parameters
- Color LCD with touchscreen
- Wifi Internet connectivity
- Large capacity battery for long operation time
- Alarm and notification functions using built-in speaker
- micro SD Slot to backup readings offline
- GPS receiver to map coordinates to measurements
- micro USB connector for power and data
- Real Time Clock
- Direct and Cloud data access via API
- Rugged design with aluminum enclosure
- Low power consumption
- Compact size 110x65x25 mm

### Applications

- Home monitoring
- Office and production space monitoring
- CBRN Monitoring
- Smart cities
- Internet of things

### Description

uRADMonitor D is a compact portable environmental dosimeter, capable of measuring Alpha, Beta and Gamma radiation but also air quality as PM2.5 and Volatile organic compounds. It is a modern design, featuring a large color LCD screen with touchscreen, a GPS receiver to tag all measurements and a micro SD Card slot. It comes with WLAN connectivity to send all data online.

Automated monitoring provides more options over using handheld units occasionally. Mapping data trends becomes possible thanks to continuous surveillance and a permanent data flux. We have a higher detection capability for small variations and can trigger automated alarms if predefined thresholds are reached, improving reaction time while lowering costs.

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.

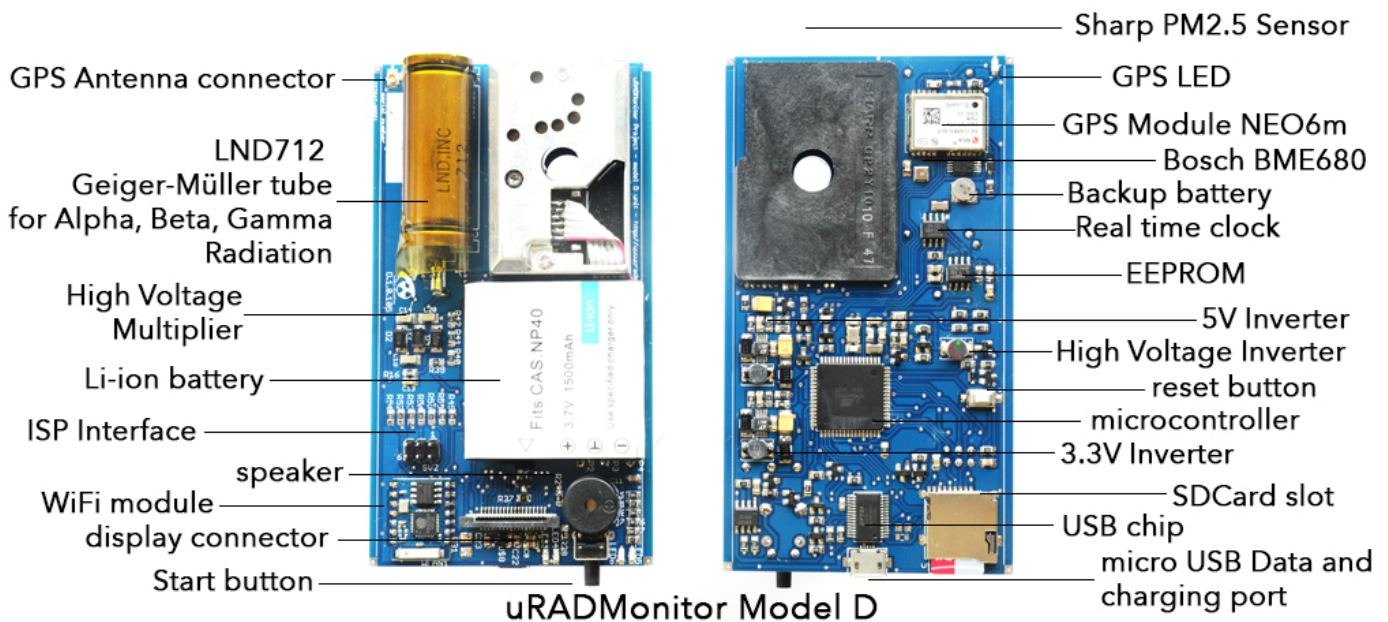
### Sensors

uRADMonitor model D uses the BME680 from Bosch to measure air temperature, barometric pressure, humidity and volatile organic compounds, or VOC. A Sharp photoelectric sensor is used to detect the Particulate Matter PM2.5 concentration in air. A high quality LND712 Geiger Tube Made in the USA allows this dosimeter to detect alpha, beta, gamma and x-ray ionizing radiation.

| Sensor             | Parameter    | Minimum value       | Maximum value  | Operating temperature |
|--------------------|--------------|---------------------|--|-----------------------|
| Bosch BME680       | Temperature  | -40 °C              | +85 °C   | -40 °C .. +100 °C     |
|                    | Pressure     | 300 hPa             | 1100 hPa   |                       |
|                    | Humidity     | 0% RH               | 100% RH  |                       |
|                    | VOC          | 0 mg/m <sup>3</sup> | 100 mg/m <sup>3</sup> reducers<br>10 mg/m <sup>3</sup> oxidizers |                       |
| Sharp GP2Y1010AU0F | PM2.5        | 0 µg/m <sup>3</sup> | 800 µg/m <sup>3</sup>  | -40 °C .. +100 °C     |
| LND LND712         | α,β,γ,x-rays | 0.005µSv/h          | 5000.00µSv/h   | -40 °C .. +100 °C     |

### Specification

| Parameter            | uRADMonitor D            |
|----------------------|--------------------------|
| Internet connection  | Wifi 2.4GHz              |
| Standards            | IEEE 802.11b/g/n         |
| Wireless frequencies | 2400-2483.5MHz           |
| TX Power             | 100mW                    |
| Modem Chip           | Espressif ESP8266        |
| Modem certifications | CE, FCC                  |
| Antenna connector    | SMA male                 |
| Enclosure Protection | IP30                     |
| Supply Voltage       | micro USB 5V             |
| Dimensions           | 110x65x25 mm (excl. sup) |
| Weight               | 180g                     |
| Mounting             | handheld                 |



### Health impact

The purpose of the model D detector and that of the entire uRADMonitor network is to monitor chemical and physical factors that can have a negative impact on our health or on the environment. Using its advanced sensors, the model D monitors against the following potentially hazardous parameters:



Picture: Air pollution can shorten our lifespan, this is why we need uRADMonitor

**VOC or volatile organic compounds** are a class of substances that evaporate at room temperature. Being different substances may be responsible for a broad category of disorders, including respiratory problems, allergic or weakening immunity in children. Some VOC 's are responsible for the formation of smog, irritation of eyes, nose and throat, headaches and concentration problems. In extreme circumstances, more severe complications can occur, such as damage to liver, kidney and central nervous system or cancer [1]

**Ionizing radiation** is harmful to living organisms because it can cause damage to cells that can result in multiple disorders, the most common of which is cancer. Ionizing radiation is naturally occurring from cosmic and terrestrial sources, but there are also artificial generators related to nuclear activities or x-ray devices . Worldwide global average dose is 3.01mSv [2]

**Particulate matter PM2.5** refers to small particles with a diameter of up to 2.5 microns. These particles can penetrate deep into the lungs , causing allergies, respiratory and cardiovascular diseases [3]

### Warranty

uRADMonitor A3 is covered by a 12 months warranty for any defects in material or workmanship, under normal use.

### Resources

- [1] [Volatile Organic Compounds' Impact on Indoor Air Quality, US Environmental Protection Agency](#)
- [2] [Radiation Health Effects, US Environmental Protection Agency](#)
- [3] [Health and Environmental Effects of Particulate Matter \(PM\), US Environmental Protection Agency](#)