

### AirQino Outdoor

### Air Quality Networks

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Services offered in collaboration  
with the Italian National Research Council,  
responsible for calibration and data validation.



# AirQino Monitoring System

AirQino is a high precision environmental monitoring system. A cost-effective solution designed to detect, store and analyze data about the most important **air pollutants** and **chemical compounds** present in the atmosphere.

AirQino was developed by the **Italian National Research Council (CNR IBE)** in collaboration with TEA Group for the production and Quanta Srl for distribution.



## Monitoring Stations

Indoor or outdoor, detect weather conditions and the **concentration of pollutants**.



## Real Time Data

The **modular structure** of AirQino allows to establish high-precision monitoring networks.



## AirQino Cloud

AirQino web platform collects data and provides reporting and **analysis tools**.



## Calibration

Monitoring stations can be configured with a wide set of sensors, calibrated by CNR® using **official ARPA stations**.



## Data Analysis

AirQino Web platform provides in-depth data reporting and analysis tools. **Reports** are available upon request.



# AirQino Configurations

AirQino stations are configurable with a wide array of sensors: **SO<sub>2</sub>**, **NO<sub>X</sub>**, **HCL**, **NH<sub>3</sub>** and much more. Specific solutions are available for **urban area**, **vehicular traffic**, **industry** and **refineries**.

Select one of our standard configurations such as **Industry**, **Traffic**, **Chlorine** , **Pro** or request a custom sensors set-up.



## Smart

AirQino Smart monitors the concentration of dangerous pollutants and chemical compounds such as **NO<sub>2</sub>**, **CO**, **O<sub>3</sub>**, **PM<sub>2.5</sub>** and **PM<sub>10</sub>**. For this configuration it's not possible add any other sensors.

C°	Ur	NO <sub>2</sub>	CO	O <sub>3</sub>	PM 2.5	PM 10
●	●	●	●	●	●	●



## Base

The basic version of AirQino detects temperature, humidity and monitors agents pollutants such as **CO**, **NO<sub>2</sub>**, **O<sub>3</sub>**, **PM 2.5** and **PM 10**. and the main one climate-altering gas: **CO<sub>2</sub>**.

C°	Ur	NO <sub>2</sub>	CO	O <sub>3</sub>	CO <sub>2</sub>	PM 2.5	PM 10
●	●	●	●	●	●	●	●



## Traffic

This configuration is equipped with an additional, specific set of sensors for the detection of **nitrogen oxides (NO<sub>X</sub>)**. It also has a sensor dedicated to the detection of **noise pollution (dB)**.

C°	Ur	NO <sub>2</sub>	CO	O <sub>3</sub>	CO <sub>2</sub>	PM 2.5	PM 10	dB	NO <sub>X</sub>
●	●	●	●	●	●	●	●	●	●

# AirQino Configurations



## Industry

For industrial areas and harbors we developed a version equipped with a sensor kit to detect substances such as **sulfur dioxide** (SO<sub>2</sub>) and **hydrogen sulphide** (H<sub>2</sub>S).

C°	Ur	NO <sub>2</sub>	CO	O <sub>3</sub>	CO <sub>2</sub>	PM 2.5	PM 10	SO <sub>2</sub>	H <sub>2</sub> S
●	●	●	●	●	●	●	●	●	●



## Chlorine

For critical issues related to the presence of pollutants deriving from specifications industrial processing this configuration has sensors to detect substances such as **chlorine** (CL) and **hydrochloric acid** (HCL).

C°	Ur	NO <sub>2</sub>	CO	O <sub>3</sub>	CO <sub>2</sub>	PM 2.5	PM 10	CL	HCL
●	●	●	●	●	●	●	●	●	●



## Agro

The version dedicated to agriculture; this configuration detect substances present in pesticides and synthetic fertilizers such as **hydrogen sulphide** (H<sub>2</sub>S), **sulfur dioxide** (SO<sub>2</sub>) and **ammonia** (NH<sub>3</sub>).

C°	Ur	NO <sub>2</sub>	CO	O <sub>3</sub>	CO <sub>2</sub>	PM 2.5	PM 10	NH <sub>3</sub>	H <sub>2</sub> S	SO <sub>2</sub>
●	●	●	●	●	●	●	●	●	●	●



## Pro

AirQino Pro is equipped with a set of additional sensors dedicated to the detection of **nitrogen oxides** (NOX) and **sulfur dioxide** (SO<sub>2</sub>); substances often found in construction sites and demolition sites.

C°	Ur	NO <sub>2</sub>	CO	O <sub>3</sub>	CO <sub>2</sub>	PM 2.5	PM 10	dB	NOX	SO <sub>2</sub>
●	●	●	●	●	●	●	●	●	●	●

# Air Quality Networks

AirQino Outdoor allows to establish high-precision **environmental monitoring networks**, to target specific **hotspots** or **cover extensive areas**. The solution to detect the concentration of pollutants present in the atmosphere and analyze the factors that influence their dynamics.

## Urban Areas

Urban areas often feature several air pollution hotspots. These are typically the result of **human activities, heating systems, traffic and heat islands**.

### Base



## High Traffic Areas

Vehicular traffic of light and heavy vehicles is the main cause of many pollutants such as **NOX (nitrogen oxides)** and high levels of **PM2.5 and PM10 (fine dust)**.

### Traffic



## Industrial Areas

AirQino can be installed on the perimeter of an **industrial plant, a refinery or a port area**. As a continuous monitoring system, it allows to supervise the general state of air quality.

### Industry



## Rural Areas

Rural areas are often subject to pollution levels due to **agricultural and intensive farming** activities.

### Agro



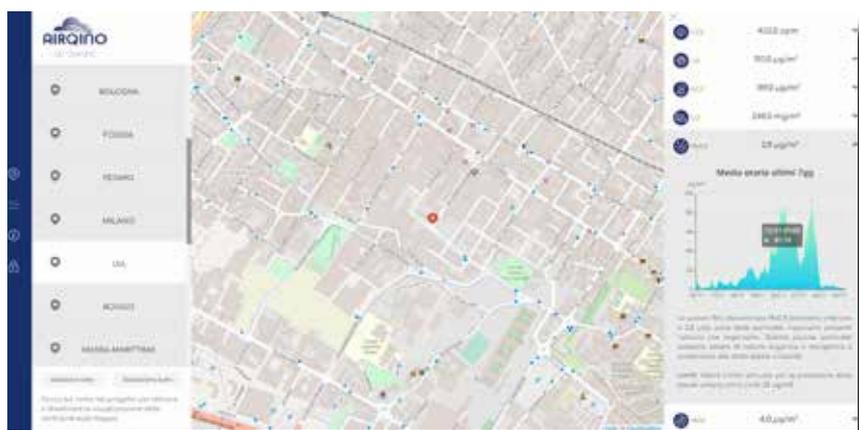
# AirQino Cloud

Data detected by AirQino monitoring stations are transmitted to **AirQino Cloud**. Here they are adjusted with the respective calibration coefficients and **dedicated algorithms** to generate the final output data.

## Maps

AirQino web platform is our data reporting integrated solution. **High-frequency data** detected by AirQino stations are transmitted in real time to the cloud, where algorithms process the information to provide a solid base for live monitoring and historical analysis.

The **custom web space** we offer can be used to disseminate data to the public or can be set as private, to serve as an internal monitoring system.



## APIs

The **AirQino API** offers a secure and seamless air quality data feed into any system or media from the secure AirQino Cloud.

## Your Custom Dashboard

Upon request, our team can develop a custom dashboard for your project.

Dashboards can be connected to live data that is automatically updated in real-time.

So you are able to visualize and share key information, whenever you want and quicker than ever.

A dashboard is easy to access via internet or intranet.



# About AirQino

## Publications

AirQino was originally developed by the **Institute of BioEconomy** of the Italian National Research Council of Florence. A pioneer in the field of air quality **low-cost sensor technology**, over the past 10 years the public institute has had the opportunity to collaborate closely with many **EU EPAs** over a considerable number of projects, continuously improving the hardware and meticulously developing the calibration protocols it still oversees today.

The vast **academic scientific** research produced on AirQino documents field deployments across several types of environments, and provides a valuable reference that testifies its full compliance to the **2008/50/EC Directive**.



**Innovative low-cost air quality stations as a supporting means for road traffic regulations in urban areas**

Brilli, L., Berton, A., Carotenuto, F., Gioli, B., Gualtieri, C., Martelli, F., Profeti, S., Trombi, G., Dibari, C., Moriondo, M., Vagnoli, C., & Zaldei, A.

[Read more...](#)



**Long-Term Performance Assessment of Low-Cost Atmospheric Sensors in the Arctic Environment**

Carotenuto F., Brilli L., Gioli B., Gualtieri G., Vagnoli C. Mazzola M., Viola A. P., Vitale V., Severi M., Traversi R., Zaldei A.

[Read more...](#)



**Design and Performance of a Low-Cost Atmospheric Composition Monitor for Deployment in Extreme Environments**

Carotenuto, F., Brilli, L., Gioli, B., Gualtieri, G., Martelli, F., Mazzola, M., Vagnoli, C., Viola, A., & Zaldei, A.

[Read more...](#)

If you are interested in other publications on AirQino [visit the dedicated page](#).

## In the Media



## About Us

After a development in the scientific field, AirQino was industrialized by **Tea Group and Quanta S.r.l.**, responsible for production and distribution. The National Research Council is today our trusted partner for **calibration** and **data analysis**.



### Production

Since 1985, TEA operates in the field of Electronic Technologies applied to the Military. Active in several R&D projects in collaboration with public research institutes, TEA offers specialized system and services addressed to regional planning, meteorology and environmental monitoring.



### Distribution

Quanta is a company specialized in the design, development and production of integrated electronic devices. For over 30 years, Quanta has been active in the fields of thermoregulation, industrial automation, alternative energy, and acquisition of physical parameters.

### Our Trusted Partner



### Calibration and Data Analysis

The National Research Council (CNR) is the largest public research institute of Italy. Originally founded in 1923, since 1989 its mission is to carry out research projects with the goal of promoting innovation in the national industrial system and provide technologies to the public and private sectors.

## FAQs

### Installation

AirQino monitoring stations can be easily installed on buildings, rooftops, canopies, lighting poles, telematic gates and traffic lights. We recommend positioning the units at minimum height of 3 meters. For fixed stations, access to a low voltage electrical connection is required.

### Data Transmission

AirQino stations feature an integrated GPRS communication system that transmits data in real time, with a frequency of 5 minutes. Upon request, devices can be configured with alternative communication systems: RS 232, Ethernet, for integration with Industry 4.0 SCADA systems.

### Maintenance

A periodic review of the sensors calibration is suggested to maintain high performance standards. Suggested frequency may vary depending on the specific application.

### Sensors Configuration

AirQino stations are modular and highly configurable. Some standard configurations include: Base, Traffic, Industry. Monitoring stations can also be customized with a wide range of sensor sets to accommodate specific requirements.

## Contacts



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