

Not all sensors are Equal

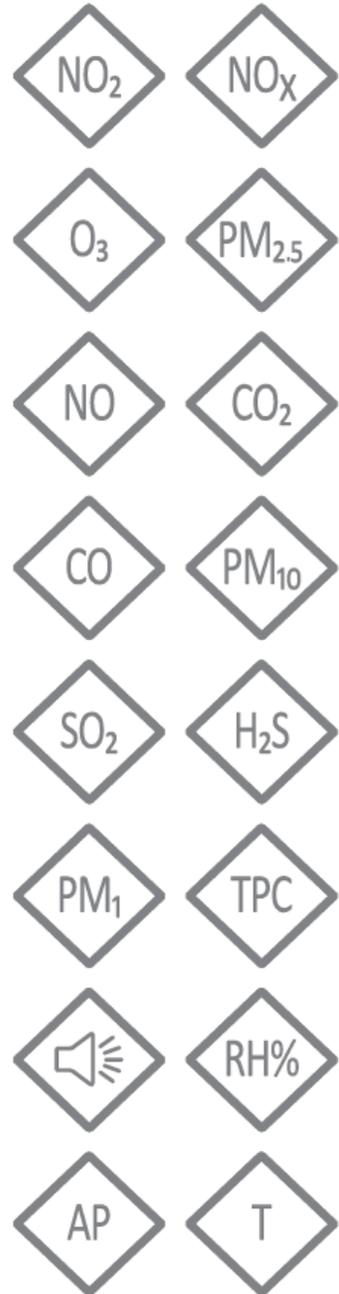
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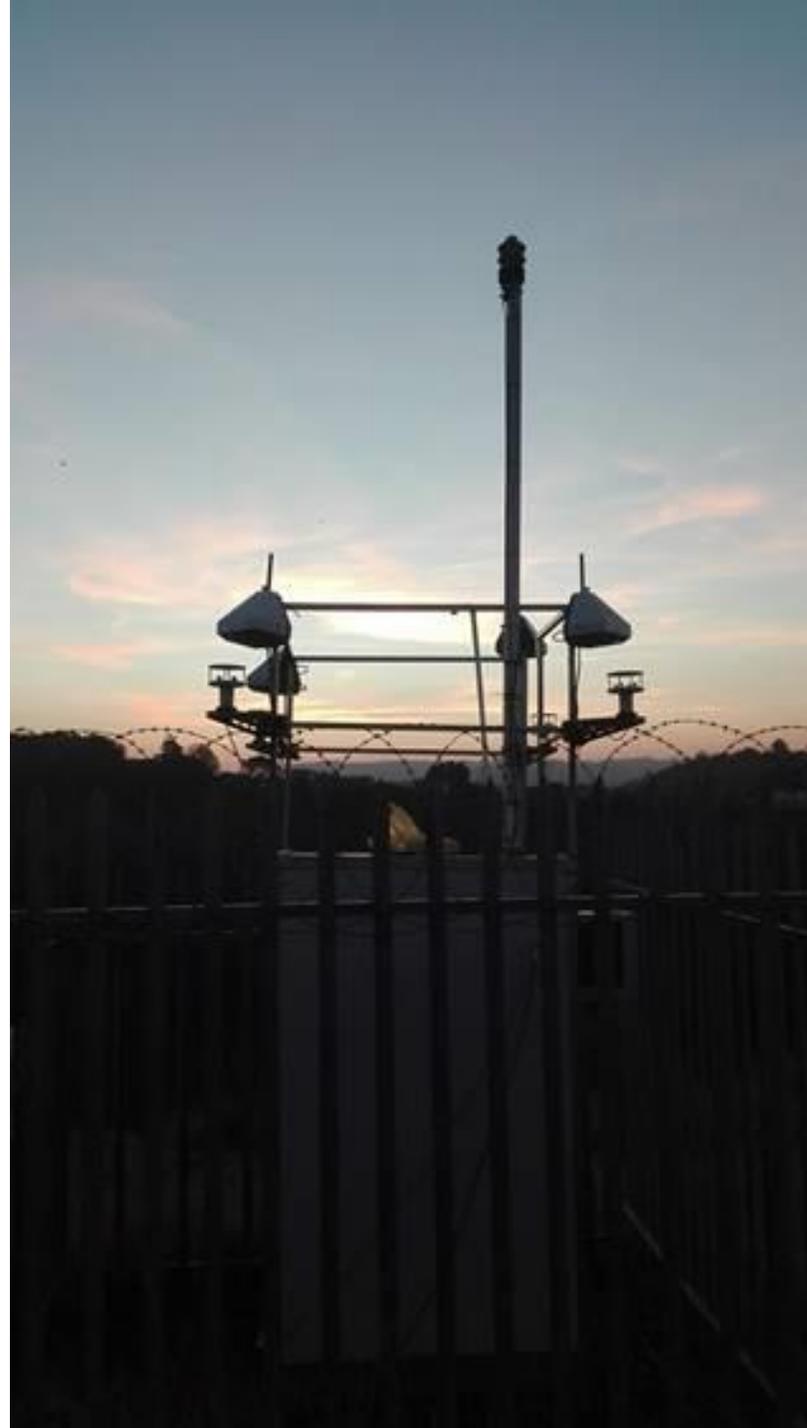


 **AQMesh**

What is AQMesh?



- ▶ Small sensor system for ambient air quality monitoring
 - ▶ Practical instrument for long-term outdoor use
 - ▶ Cloud processing of sensor output with secure online data access
- ▶ Developed in partnership with University of Cambridge
 - ▶ Ambition to improve spatial resolution of air quality monitoring networks
- ▶ Measures:
 - ▶ 6 gas options with electrochemical (Alphasense) sensors
 - ▶ NO, NO₂, O₃, CO, SO₂, H₂S
 - ▶ CO₂ (NDIR)
 - ▶ Total particle count, PM₁, PM_{2.5}, PM₁₀ (optical particle counter, OPC)
 - ▶ Environmental conditions: Pod temperature, atmospheric pressure, RH%
 - ▶ Noise (omnidirectional microphone)
 - ▶ Meteorological: wind speed and direction



What's unique about AQMesh

- ▶ A combination of features
 - ▶ Longer and wider development programme than competitors
 - ▶ Proven performance
 - ▶ Our published co-location comparison reports
 - ▶ Independent papers
 - ▶ Take measurements anywhere
 - ▶ AQMesh enables air quality to be monitored in the exact locations that need to be monitored RATHER than when equipment can be conveniently positioned.
 - ▶ Low power platform with battery, solar and DC power options
 - ▶ Communication using the mobile phone network
 - ▶ Wide combination of measurements in one small unit
 - ▶ Including notoriously difficult NO₂ and O₃
 - ▶ Designed for use in all conditions
 - ▶ Ambient factory set-up and QA/QC



AIRLAB International Microsensors Challenge

- ▶ AQMesh is recognised as the most accurate multi-parameter small sensor system for outdoor air quality monitoring in AIRLAB International Microsensors Challenge among 34 commercially available small sensor air quality monitoring systems.
- ▶ The results of the 2019 AIRLAB Microsensors Challenge* were revealed in Paris on 21st January and AQMesh was awarded the highest score for accuracy of all multi-parameter products presented for monitoring of outdoor air quality.



Some Applications

- ▶ Smart cities
 - ▶ Hyperlocal network
 - ▶ London (C40), Minneapolis, Newcastle
 - ▶ Clean air zones
 - ▶ London Bridge, Tooley street
- ▶ Research projects
 - ▶ Variation in air quality at height
 - ▶ High rise building vents / windows
 - ▶ Impact of industrial stack emissions on nearby buildings
 - ▶ Assessment of impact of pollution mitigation measures
 - ▶ Green barriers
 - ▶ Road surface treatment
 - ▶ Impact of volcanic activity
 - ▶ Nicaragua, Hawaii
 - ▶ Complementing modelling
 - ▶ NILU and CERC papers
 - ▶ Distinguishing between local and regional / remote sources of pollution, eg: Cambridge



Breathe London

- ▶ Breathe London combines state-of-the-art technology with new data analytics to better understand Londoners' exposure to air pollution. Measuring harmful pollution at thousands of locations informs data-driven solutions to clean up our dirty air and foster healthier, stronger communities.
- ▶ Breathe London installed a network of 100 state-of-the-art sensor pods on lamp posts and buildings throughout the city, continuously transmitting air quality measurements.
- ▶ By visualising the existing, invisible threat - and documenting the benefits of policy interventions - more and better data can lead to more effective policies and, ultimately, healthier air.



Mapping air pollution at the street level

Breathe London is a new project aimed at better understanding Londoners' exposure to air pollution around the city

Thank you for your attention

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