

Airlab micro-sensors

Challenge 2023

Use for which sensor performance was best:
Outdoor Air Monitoring

WT1^{V1.3} by ellona



Jury's opinion

The WT1 provided an overall **very good performance in terms of accuracy in the current edition**, with **excellent quality for NO₂**, achieving **the best performance** for the French deployment. **Its PM₁, PM_{2.5} and O₃ measurements has also very good performance.** It provides an adequate list of targeted pollutants. However, the addition of PM₁₀ would also be welcomed for monitoring applications. It has **complete data recovery options, real-time notifications, and is relatively easy to setup**. As such, **it scores very well in terms of utility and fares also well for usability**. It is penalized, however, for its significant size and its cost, which remains relatively high compared to other competitors.

Measured pollutants

- | | |
|---------------------|--------------------------------------|
| ● CH ₂ O | ✓ NO ₂ (NO _x) |
| ● CO | ✓ O ₃ |
| ● CO ₂ | ✓ PM ₁ |
| ● VOC | ✓ PM _{2.5} |
| ● H ₂ S | ● PM ₁₀ |
| ● NH ₃ | ● SO ₂ |
| ● NO | ● Particle number (concentration) |

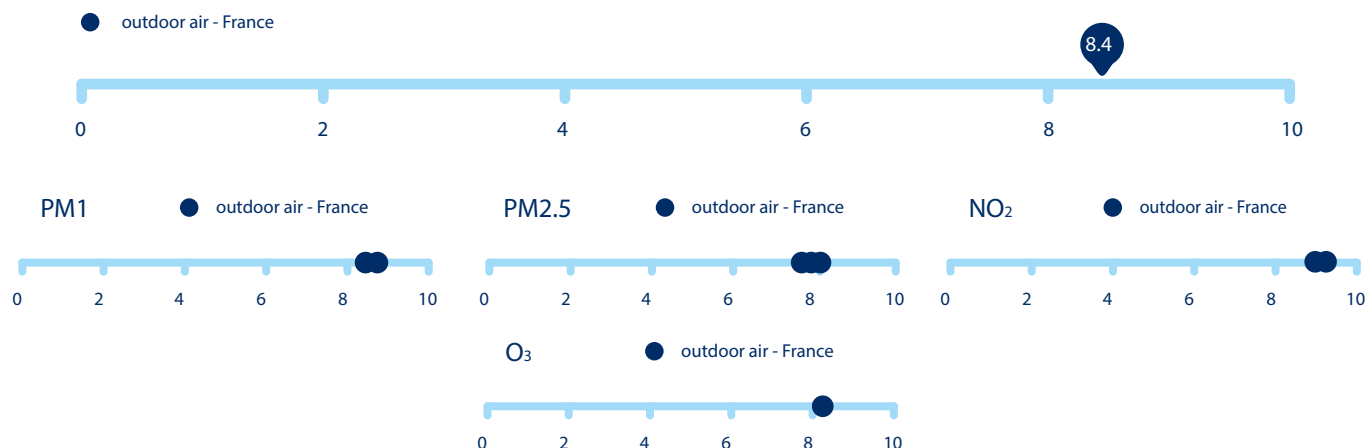
Other measurements

- | | |
|---------------|------------------------|
| ✓ Temperature | ● Atmospheric pressure |
| ✓ Humidity | ● Luminosity |
| ✓ Odours | ✓ Acoustic comfort |
| ✓ GPS | ● Anemometer |

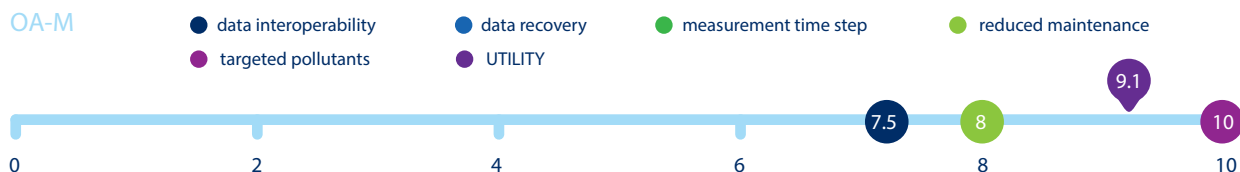
Data storage location: CLOUD (GERMANY, FINLAND)
The hosting provider is a German company.

Detailed report

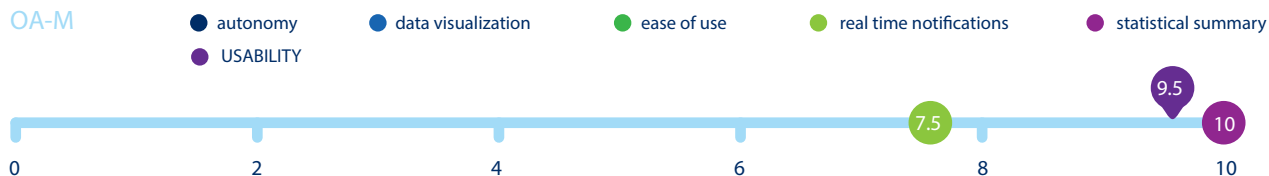
• **ACCURACY** on 3 microsensors based on the SET method (Fishbain et al. 2017)



• **UTILITY** the capacity of a sensor system to provide the essential functionalities for accomplishing the application objectives



• **USABILITY** the ability of the candidate solution to provide the conditions for its users to perform the tasks safely, effectively, and efficiently while enjoying the experience



• **FORM FACTOR** relates to how much of a physical burden the device represents for operations like transportation or installation



• **COST** investment and running costs over 3 years

