



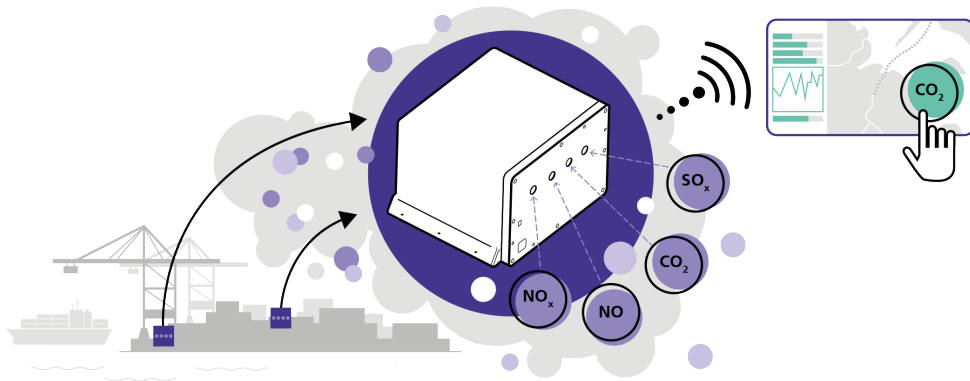
# Mobile Environmental Sensor Unit

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Mobile Immission  
and Emission Monitoring



# Flexible Monitoring System for Collecting Emission Data in a Maritime Environment



The compact sensor unit, Mobile Environmental Sensor Unit (MESU) from Fraunhofer CML enables cost-effective monitoring of the ambient air. Equipped with electrochemical sensors, selected parameters are measured and saved.

All measured values are linked to a time stamp and a location information. With its compact design and low weight, the application is not limited to a fixed position. All measurement data are stored locally or can be accessed directly and in real time. Immediate display of current measured values is possible, just like the evaluation of past time series.

MESU can be used in all locations where an electric power supply is available. The cover of the box can be attached directly to a wall or with the help of a clamp on a pipe. Further fastenings are possible.

After the box has been connected to a power source the software initiates the measurements and after a few minutes those can be called.

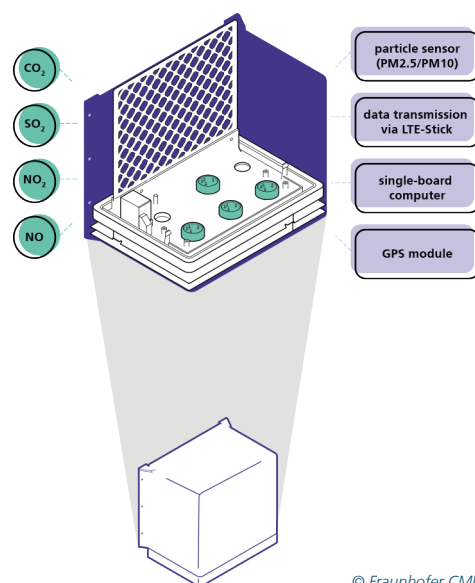
## Current Configuration

MESU enables long-term analysis of the ambient air. Selected parameters are continuously detected and recorded. The current configuration enables the measurement of NO, NO<sub>2</sub>, SO<sub>2</sub>, CO<sub>2</sub> and fine dust (PM<sub>2.5</sub> and PM<sub>10</sub>). In addition, the temperature and humidity are saved.

Originally designed for the use of two sensor units running in parallel on a ship for recording emission values, a single MESU could also provide conclusions about air pollution, e.g. in the port area or on busy roads, when operated alone. Equipment with other sensors and the associated detection of other gases is possible and can be adapted to your request.

## Immission and Emission Measurements

The Fraunhofer CML offers immission and emission monitoring. The location can be selected freely and mobile use is also feasible. A maximum of 30 W power is required per



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MESU. For immission monitoring only one sensor box must be set up. Two MESU units are operated in parallel to draw conclusions about local emissions.

One unit measures the background immissions (measuring range I) and the other is positioned as close as possible to the emission source (measuring range II). This way, conclusions about the emissions of a vehicle, a system or a building by direct comparison of the measurement results are possible. The measuring ranges differs in the sensitivity of the built-in sensors. They can be adapted to your requirements on request.

## Evaluation of the Measurement Data

All measurement values are displayed in a purpose-built web application. Measurement data is presented in the app developed and operated by Fraunhofer CML. You can access the app with your browser and view current as well as historical data at any time.

Data is displayed as a graph or as a point on a map. This makes it easy to link the location and the measured value, particularly in the case of mobile use. Changes in immissions or emissions allow conclusions to be drawn about a specific event or location. With a direct reference to shipping, it should also be possible in the future to integrate AIS data and take them into account in the evaluation.

Gas	Measuring Range I	Measuring Range II
NO	0 – 25 ppm	0 – 2000 ppm
NO <sub>2</sub>	0 – 20 ppm	0 – 500 ppm
SO <sub>2</sub>	0 – 20 ppm	0 – 20 ppm
CO <sub>2</sub>	0 – 5000 ppm	0 – 5 Vol%

## Individual solutions

Are you looking for a way to monitor the air in your local environment, are you interested in the pollutants with which the air is contaminated, or do you want to permanently monitor a certain parameter? Feel free to contact us and we will look for an individual solution if the current configuration does not meet your requirements.