



## SMART AIR QUALITY MONITORING/SMART SENSE

### Comprehensive & digital measurement of air quality – anytime & anywhere

About 55% of the world's population live in cities today and this is expected to increase to 70% by 2050.<sup>1</sup> Urbanization can provide opportunities for both sustainable development and economical growth. However, rapid expansion of our cities can also lead to a greater demand and over utilization of available and essential resources. Cities are not only the main cause but also the main victims of increased and intensified emissions such as exhaust gases and particulate matter from burning of fossil fuels.<sup>2</sup> The yearly **consequential costs of air pollution in the EU in relation to transportation amounts to around €66.7 billion per year.**<sup>3</sup> Hourly measurement of fine particles (PM1, PM2.5 & PM10) and other gases like NO<sub>2</sub>, O<sub>3</sub> and CO<sub>2</sub> is required in order to understand the distribution, volumes and changes of the pollutants and identify any hot-spots. Without this continuous monitoring you cannot implement measures and changes that will be effective and improve the overall air quality. Our solutions use flexible air quality

monitoring stations to determine the hourly average values of the pollutants as specified in the EU Air Quality Index. Reliable and comparable measured values of air quality are just as important for cities, citizens and tourists alike. Telekom solutions can be implemented in various and flexible locations that we can help you specify at low costs and with minimal effort. The solution also provides data and benefits for both environmental agencies and maintenance teams who look after the stations.

- **Adherence to EU specifications:** (39th BImSch specification 2008/50/ EC): Different gases and particulate matter for indicative measurements are collected.
- **Flexible locations:** Measuring devices can be mounted on masts or walls.
- **Supports clean air plans:** Through permanent, hourly measuring data of the air quality at different places.



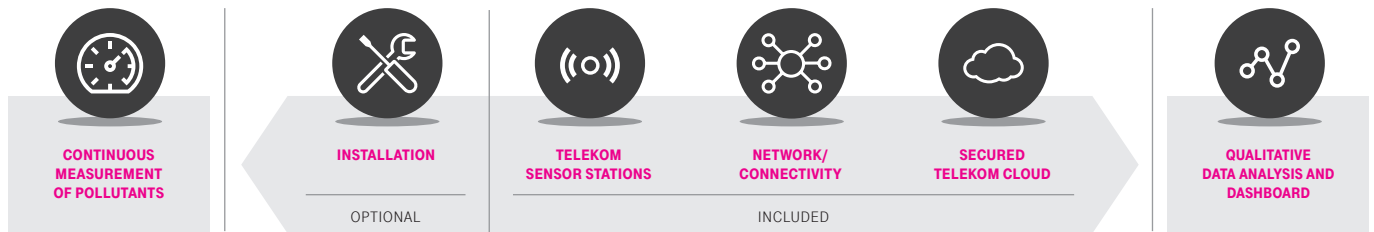
LIFE IS FOR SHARING.

1. May, 2018 Revision of World Urbanization Prospects, UN Department of Economic and Social Affairs.

2. Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung - Stadtentwicklung - Hintergrund: Das Zeitalter der Städte.

3. European Public Health Alliance (EPHA): Health impacts and costs of diesel emissions in the EU, November 2018.

# Simple air quality measurements



Measuring stations that collect air pollutant data according to the specifications of national and European regulations are used for city air quality monitoring. These stations are simple to install and to maintain. The collected data is easily viewed via a web portal dashboard. Thresholds alert can be compared to the hourly average values and additional data (weather, public transport, traffic flow etc.) can be coupled to provide value-add information and predictions. The applications and the collected data are situated in secure Deutsche Telekom European data centres.

## #1 Better air quality

### YOUR CHALLENGE

Air pollution is both an ecological and a social problem that affects human health, ecosystems, wildlife, and the climate. In fact, most living things can be harmed by the quality of the air. Humans can suffer both short and long term issues ranging from breathing problems, heart and lung disease and anxiety. Animals and insects are also affected and trees cannot breathe when fine particles settle on their leaves and acid rain also causes huge problems. Polluted air has a serious impact globally on human life with over 7 million reported premature deaths associated to it. Today, the correct measurement of air quality can be complex and expensive and not enough comprehensive monitoring stations exist providing hourly data. "If you cannot measure it, you cannot improve it". Data is needed to highlight critical areas and hot-spots such as access roads, congestion or traffic in residential areas, near schools and playgrounds. Citizens and tourists are demanding information.

### OUR SOLUTION

#### ✔ Qualitative and flexible monitoring

You get an hourly average value of the critical gases and particulate matter in your chosen locations with our simple and effective monitoring stations – know the real air quality anytime and anywhere.

## Facts

### SENSORS

- Different measuring sensors can be chosen to be added to the stations from the following EU compliant ones: NO<sub>2</sub>, NO<sub>x</sub>, CO, SO<sub>2</sub> and O<sub>3</sub> as well as fine particle PM1, PM2.5, PM10. Additionally, there is a possibility to integrate further sensors such as CO<sub>2</sub>, H<sub>2</sub>S, CH<sub>3</sub>SH humidity, temperature, air pressure, GPS, precipitation, wind and noise.

### FLEXIBLE LOCATIONS

- Smaller and light monitoring stations can be mounted almost anywhere in a city as long as there is a power supply and mobile network coverage (e.g. on lampposts, walls etc.). Battery and solar panel operation (from 2020) are additional options in the correct conditions.

### OPERATION & MONITORING

- Telekom can provide advice on the installation, supports the operation and undertakes the maintenance.
- API's are available for data retrieval and access to third party systems.
- An easy to access cloud portal is available for all functionalities.
- Faults and issues are automatically reported.

Something challenging you? Let's talk.

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