

■ BERNARD Sound Analyser



The BERNARD Sound Analyser (BSA) is a modular and intelligent sound emission measurement system for recording and evaluating noise characteristics of various infrastructure components, as well as for source noise detection.

Innovative technology, such as AI-supported pre-processing of data on site, is carried out directly in the sensor. As a result, only relevant events are transmitted and data volumes are kept as low as possible. By means of a web-based data platform, additional AI and Big Data algorithms can be integrated. The aim is to improve the quality of life of residents, as well as to implement preventive maintenance measures to preserve infrastructure components.

Permanent noise measurement

According to current standards, noise pollution caused by construction projects and by the operation of transport infrastructure is assessed by means of temporary noise measurements. Noise mitigation measures are usually only taken in isolated cases. In addition, noise measurements are also influenced by changing conditions such as weather, the growth of trees and shrubs, or changing traffic loads, and they may vary during the year. As a result, they cannot be recorded to the full extent. By using a permanent and cost-effective monitoring system the changes in emission values can be permanently recorded and thus cost-saving measures for noise mitigation can be defined and implemented.



Acoustic noise analysis

An AI-assisted analysis of audio signals can detect anomalies in various noise environments and categorize them. One application, for example, monitors the technical condition of transition joints on bridges. The provided real-time information (atypical, metallic noises) serves as the basis for decisions on maintenance operations. The systems can also be directly controlled by audio analysis. For example, emergency vehicles can be recognized by their follow-up horn tone (siren signal) and traffic light systems can be controlled accordingly, thus generating a green-wave system for emergency vehicles.



Source noise recording in road traffic

Further applications can be found in permanent source noise detection in road traffic. Ongoing monitoring with a permanently installed measuring system enables the daily recording of noise emissions broken down by vehicle category. Thus customized mitigation measures can subsequently be developed.

Advantages

- Easy installation
- Flexible applications
- Web-based data platform
- Integration of external data
- AI-supported evaluations
- 24/7 real-time information
- Monitoring of roadway crossings
- Classification and survey of road users
- Cost-effective and permanent source noise measurement