NoiseTEK

Understanding measurements. Developing projects.

Modular software for the analysis and processing of acoustic measurements, designed around the activities of acoustic professionals and the main professional applications.

Two needs, one working environment

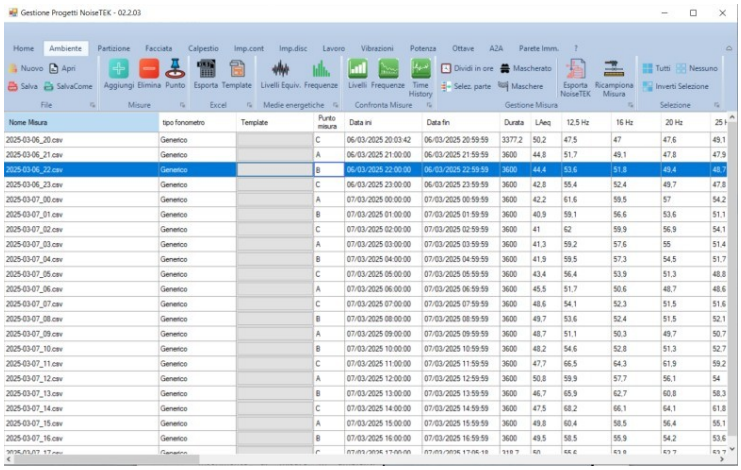
NoiseTEK combines the analysis of individual measurement recordings with the management of applied acoustics projects. On the one hand, it provides tools to understand how the measured phenomenon evolves, identify significant events and verify data quality; on the other, it allows multiple measurements to be organised according to their role in a specific investigation, dedicated processing to be applied, and results and technical documentation to be prepared.

A measurement is not treated as merely a graph to be inserted into a report: it remains data to be observed, examined and interpreted. The project links each recording to the context, calculations and objectives of the assessment.

Working with applied acoustics projects

The modular structure covers environmental acoustics, partitions, façades, impact sound insulation, continuous and intermittent building services, occupational noise and vibration, and sound power determination. Each module brings together the required measurements in a grid, with fields and functions specific to the application.

The project retains references to the original files and the data needed for processing: users can return to the detailed analysis of a measurement and verify how the results were obtained. A dedicated screen also makes it easy to find and reopen recent projects.



Modular interface and measurement management within a project.

Independence from instrument brands

NoiseTEK imports data from different manufacturers and compatible generic formats, allowing the same working environment to be used with measurements acquired using different instruments. The availability of individual analyses depends on the parameters actually recorded and the supported file format.

This makes it possible to bring together data from a measurement campaign even when the measurements originate from multiple instruments, while maintaining a consistent interpretation of the results.

Understanding what happened during a measurement

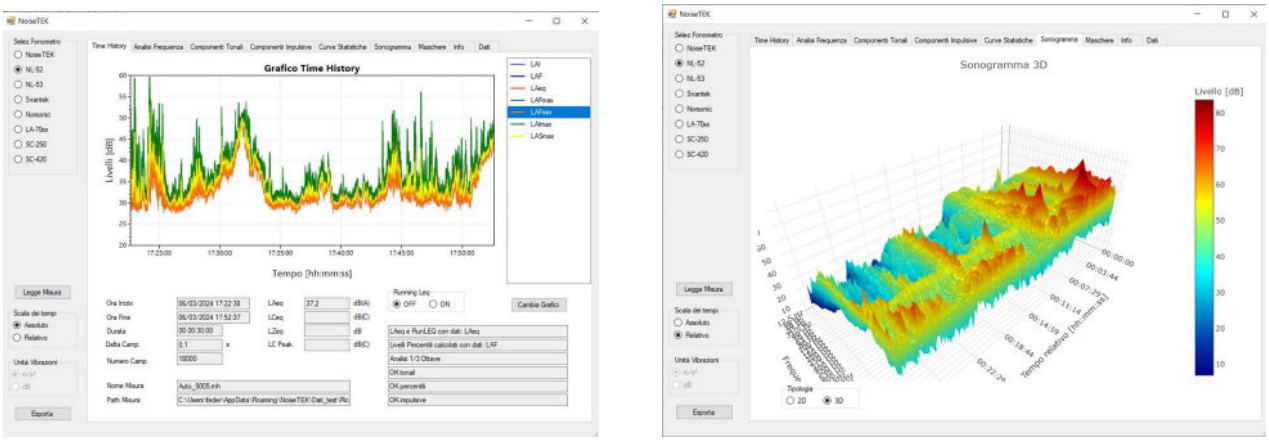
Time analysis and detailed examination

Time Histories make it possible to examine how levels evolve over time, overlay different parameters and assess the influence of individual events. Interactive navigation provides independent axis zooming, panning, scale selection, value tooltips and graph saving. The time scale can be set to absolute time or relative to the start of the measurement.

Clicking a point opens the details of that sample, including the available parameters and the spectrum at that instant. Running Leq shows the progressive formation of the overall equivalent level, helping users understand the contribution of events and the stabilisation of the measurement.

Spectra, characteristic components and statistical analysis

Frequency analysis displays average, minimum and maximum values in octave or one-third-octave bands, with linear and A- or C-weighted representations. Dedicated tabs enable the examination of tonal components using equal-loudness contours and the identification of impulsive events when the required parameters are available. Distribution and cumulative curves, together with percentile levels, complete the statistical analysis of the sound phenomenon.



Time History and 3D sonogram: two complementary representations for examining a measurement.

2D and 3D sonograms

The sonogram links time, frequency and level, making transient events, persistent components and changes in the spectrum immediately visible. The 2D map facilitates temporal and spectral localisation; the 3D surface provides an additional view of peaks. Both modes allow individual values to be examined and the display to be customised.

Switching from a time graph to the spectral analysis of the same phenomenon helps distinguish isolated events, persistent noise and changes in sound sources. The aim is not only to present data, but to provide useful information for understanding its origin and relevance to the assessment.

From sound events to their interpretation

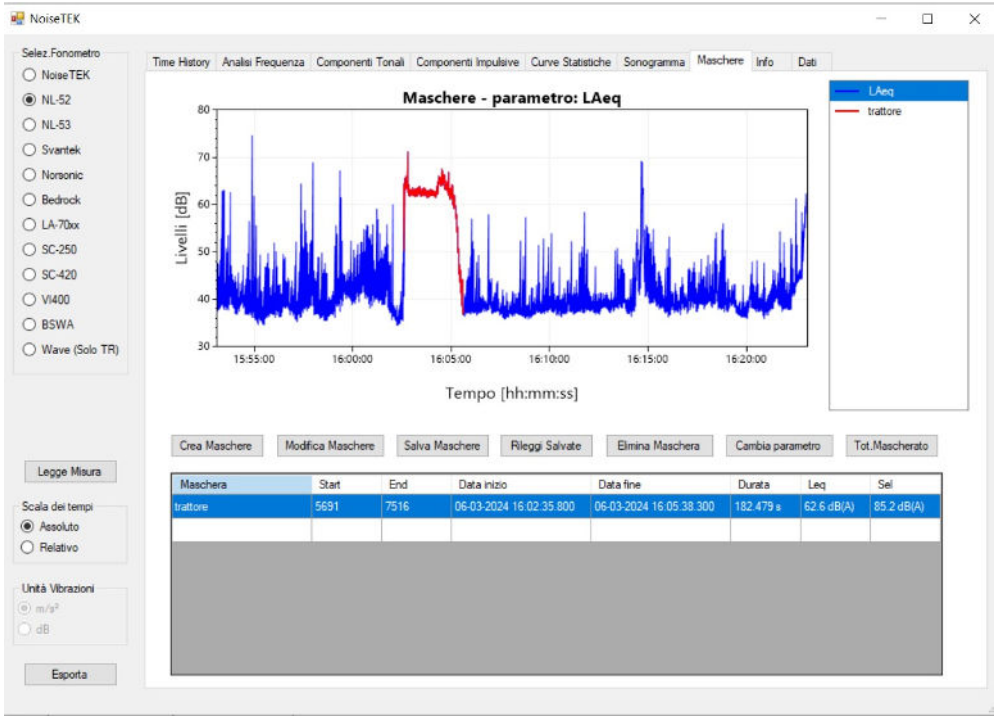
Synchronised audio playback and markers

When the instrument provides associated WAV recordings, NoiseTEK allows them to be played back while keeping the time graph synchronised. Users can select the parameter to display and immediately compare the sound being heard with the recorded profile. Markers available in supported files help identify and locate phenomena of interest.

Masks: select, compare and verify

Masks identify measurement intervals without altering the original data. They can be created manually, by searching for a maximum, using a threshold, from multiple maxima, from audio recordings or from available markers. Intervals can be edited, saved and retrieved in a later working session.

For each mask, duration, equivalent level and SEL are available; processing the overall masked interval makes it possible to assess how excluding specific events affects the overall level. In this way, users can distinguish sources, isolate representative phenomena and verify how much a single occurrence influences the result.



Coloured masks overlaid on the time profile, with an interval table.

Reverberation time: calculation and decay assessment

NoiseTEK processes decays and determines T20 and T30, displaying the curves and calculation regression lines for each band. Automatic procedures are complemented by options for reviewing the regression lines, allowing the fits to be critically assessed and individual results adjusted. Changes can be saved and resumed. Processing based on compatible WAV files is also supported.

The approach remains one of supporting the acoustic professional: automating the processing without removing control over the choices and data that determine the result.

Environmental and building acoustics

Environmental acoustics: measurements organised by location and period

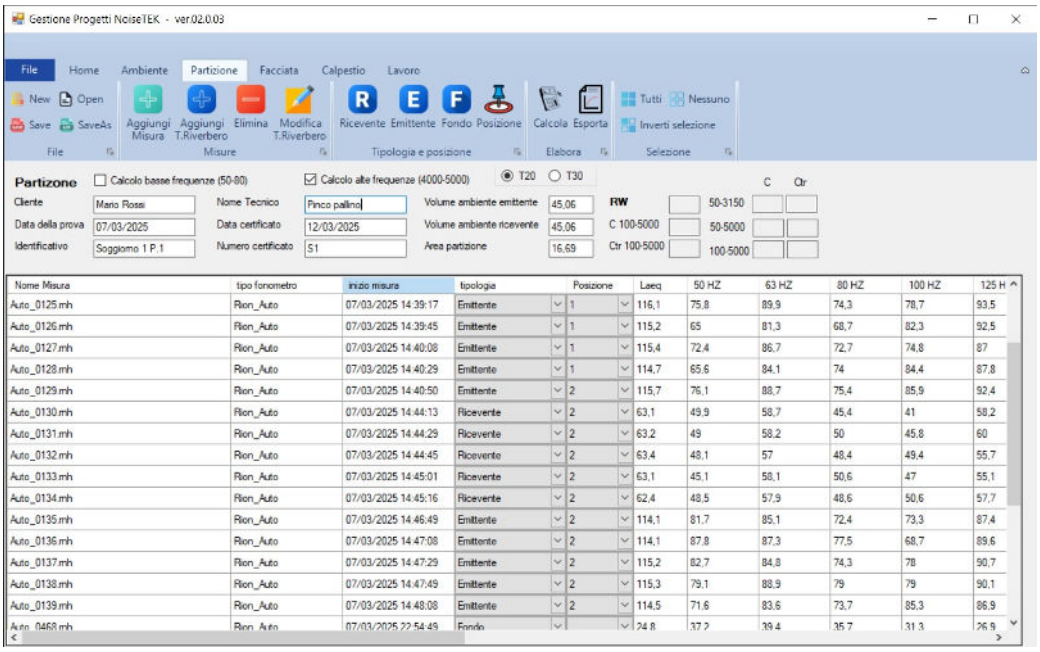
The Environmental module allows recordings made at the same locations or under different conditions to be collected and compared. It includes energy averaging, frequency processing, level and Time History comparisons, individual measurement management, time segmentation and interval extraction. Processing includes Lday, Levening, Lnight and Lden for each measurement location.

For compatible time series, resampling makes it possible to obtain longer, regular intervals with energy-based recalculation of levels, bands and percentiles; the resulting data become new measurements in their own right. These processes help turn extended recordings into more manageable information.

Building sound insulation performance

In the Partition, Façade and Impact Sound modules, each measurement is assigned its role: source or receiving room, outdoors, background, source position and reverberation time. The software combines the recordings, applies the prescribed corrections and determines the quantities and rating indices, with reference to the UNI EN ISO 16283 and UNI EN ISO 717 procedures.

Dedicated processing is available for continuous and intermittent building services, respectively based on equivalent levels and maximum Slow levels, with the applicable corrections. A function is also provided to check the impact rate of the tapping machine using an audio recording.



Example of measurement management in the building acoustics module.

The results are used to prepare test certificates, while keeping the process from field measurements to calculations verifiable.

Occupational noise and vibration

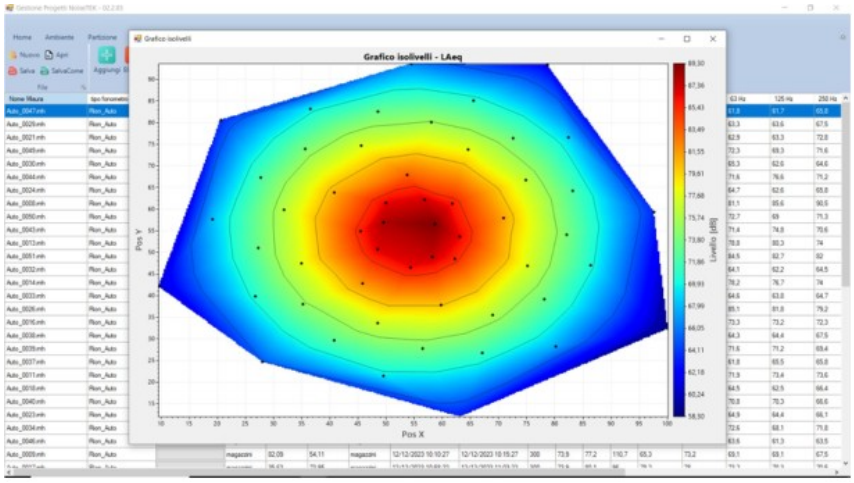
Noise: from measurements to exposure

NoiseTEK organises recordings by tasks, jobs, groups and areas, calculates average levels and provides processing tools for assessing personal noise exposure in accordance with UNI EN ISO 9612:2025, including the uncertainty information provided by the module. The structure allows several representative measurements to be collected and linked to the operating contexts in which they were performed.

For checking hearing protection devices, the octave-band method (OBM), HML and SNR methods are available, together with a device database. Spectral analysis makes it possible to relate noise characteristics to the expected protection rather than relying solely on an overall value.

2D and 3D noise contour maps

When spatial coordinates are associated with measurements, the Workplace module can represent the distribution of levels through colour maps and contour lines. The 2D and 3D modes help users understand how noise is distributed throughout the environment, highlighting areas with higher levels. Navigation, value inspection and image-saving functions are available.



Level map: spatial representation of measurement data.

Spatial representations and exposure indicators address different but complementary needs: describing workplace conditions and assessing their effects on people. Dedicated tools make it possible to address both aspects while retaining a common method for organising measurements.

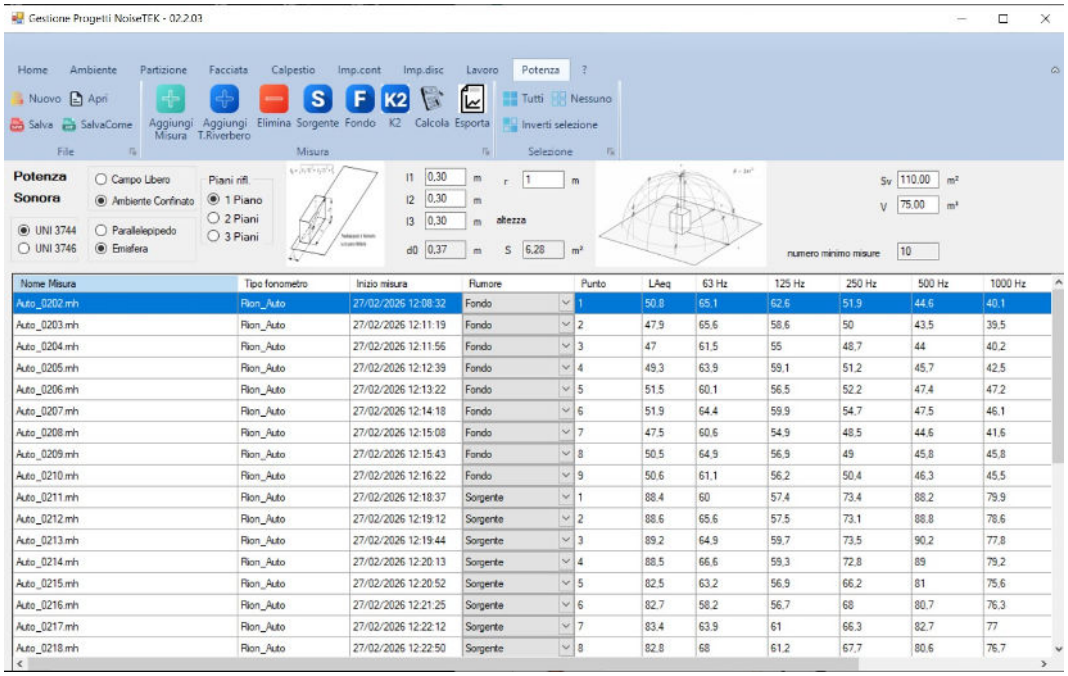
Vibration: hand-arm and whole-body

A dedicated module manages vibration measurements, assignment of channels to the X, Y and Z axes, aggregation by groups and calculation of daily exposure for hand-arm and whole-body vibration. Measurement management includes time and frequency graphs, displaying values in m/s^2 or dB, according to the available data.

Sound power

Sound power determination

The Sound Power module processes sound pressure measurements to determine the sound power level according to UNI EN ISO 3744 or UNI EN ISO 3746. The acoustic professional selects the standard, measurement surface, configuration and environmental conditions; the program uses source and background measurements and applies the relevant corrections, producing overall and frequency-band results.



Sound Power module interface: measurement surface setup and organisation of recordings.

Working tools

Exports and customisable templates

NoiseTEK exports data and results to Excel using templates dedicated to different activities. These templates allow measurement sheets, technical documents and tables to be prepared and can be customised to suit the requirements of the consultancy or client. The application modules also provide exports of calculation data and the applicable certificates. The availability of CSV files and graphs that can be saved as images facilitates further processing and the inclusion of results in technical documentation.

Software designed for the acoustic professional

NoiseTEK combines tools for viewing and interpreting measurements with a project-oriented structure. It does not replace the professional expertise or methodological decisions of the qualified acoustic specialist: it provides a shared environment for organising data, critically examining recordings, applying calculation methods and presenting technically verifiable results.

For information, configurations and demonstrations: NTEK S.r.l. | noisetek@ntek.it | +39 011 18 83 66 24 | www.ntek.it