



**Nor145 (1CH) / Nor150 (2CH)**

# Sound Level Meters Nor145 (1-channel) Nor150 (2-channels)

Nor145 and Nor150 Sound level meters set new standards in user-friendliness and sophistication, raising the bar beyond what is currently available in sound level meters on the market. Both instruments feature a 4.3" true-color touchscreen and an intuitive, smartphone-inspired interface for fast, seamless operation in any field environment.

Built on the same powerful hardware and software platform, the Nor145 and Nor150 share a robust core configuration, with each instrument optimized for its specific applications.

The Nor145 is a single-channel sound analyser engineered for maximum mobility and seamless wireless connectivity. Equipped with integrated 4G/LTE and WLAN modems, it offers a more compact and lightweight design than the Nor150. As a highly versatile acoustic multi-tool, the Nor145 is the preferred choice for acoustic consultants who demand flexibility, efficiency, and effortless communication in the field.

The Nor150 is a dual-channel analyser designed for demanding applications, including sound intensity measurements and dual-channel building acoustics. Its LAN interface enables seamless integration with external devices, ensuring flexible and reliable connectivity for advanced measurement configurations.

Both instruments feature integrated GPS and support for a wide range of sensors - including accelerometers, geophones, and hydrophones - delivering true laboratory-grade performance directly in the field.

With the free NorVirtual app, you can connect your smartphone, tablet, or PC to take full control of the instrument. Photos and voice notes captured on your mobile device are seamlessly linked to markers in your measurement data, enabling richer documentation and more efficient reporting.



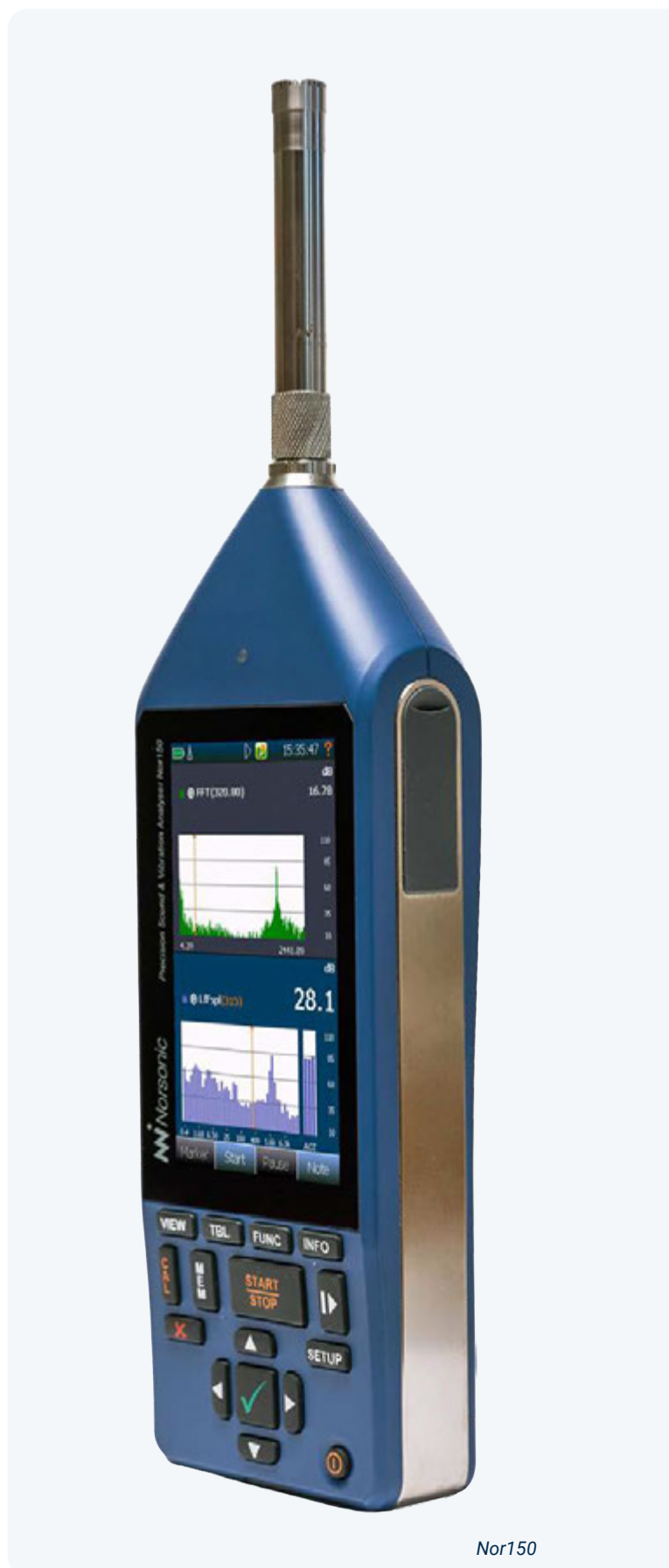
Nor145

## Applications

- Environmental noise assessments
- Building acoustics
- Room acoustics - STIPA
- Sound intensity (Nor150 only)
- Noise monitoring
- Product noise testing - Sound Power
- Vibration measurements
- Noise in the workplace
- Infrasound measurements
- Ultrasound measurements
- Underwater acoustics
- Noise nuisance recorder
- Front end for Nor850
- API for system integrators

## Features

- Class 1 Precision sound level meter and frequency analyser.
- Easy connectivity via built in WLAN and 4G LTE modem (Nor145).
- Dual channel (Nor150).
- Large colour touchscreen (4.3").
- Real push keys for quick operation in challenging environments.
- Intuitive user interface.
- App startup screen for selection of measurement mode and custom-made user setups.
- Voice, text notes and built-in GPS for documentation of the measurements.
- Wide frequency range (0.4 Hz – 40 kHz in 1/3 octave band and FFT).
- Parallel 1/3 octaves and FFT analysis.
- 120 dB measurement range.
- Extensive trigger system for reports, audio recording and camera.
- Seamless integration with Nor850 and NorCloud software.
- Multi language support.
- Extensive on-board help system.



Nor150

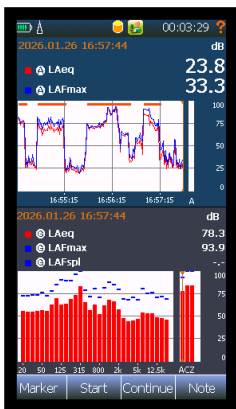
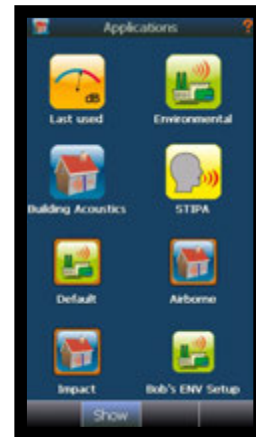
## Innovative - Quality - Robust - Reliable

The Nor145 and Nor150 sound level meters are designed to enhance your efficiency and overall experience at work. Their slim, ergonomic housing enables comfortable one-handed operation, leaving your other hand free to hold railings or maintain balance in demanding environments.

Measurement data is available in open text format or can be seamlessly analysed using the full range of Norsonic application software packages, ensuring smooth data handling from field measurement to final evaluation.

The intuitive start-up screen offers a range of predefined set-ups for various applications. You can also easily add your own customised set-ups, which are then displayed directly on the start-up screen. This flexibility makes the instruments ideal for shared use among multiple users and for a wide variety of measurement tasks.

Simply load the appropriate app, calibrate the instrument, and start measuring.



### Level vs. time

Level-versus-time recording provides detailed time-history profiles with time resolutions down to 5 ms. Two reports with different time resolutions, together with a moving (rolling) report, can be measured simultaneously alongside the overall (global) measurement. Time-profile recordings can also include octave and third-octave band data, ensuring comprehensive data analysis within a single measurement.

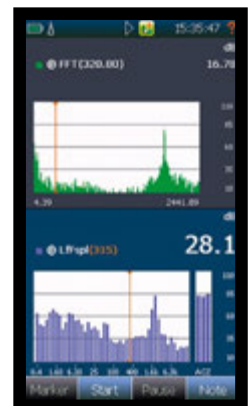
The pause function allows interfering noise to be removed directly during the measurement, including flexible backward deletion. This significantly reduces, or even eliminates, the need for post-processing, thereby saving valuable analysis time.

Audio recordings, voice and text notes, photos, and a wide range of user-defined markers enable thorough and well-structured documentation of every measurement.

### Frequency analysis

Frequency analysis can be performed using octave, third-octave, and narrow-band FFT analysis. Frequency spectra are recorded simultaneously with all broadband parameters, removing the need for separate time-profile measurements.

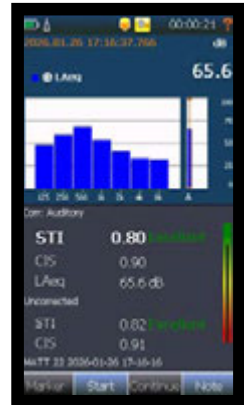
All measured variables can be displayed either logarithmically (dB) or linearly (Engineering Units, EU), depending on the connected transducer. Supported sensors include microphones, accelerometers, geophones, hydrophones, and other compatible transducers. Both traditional Lemo preamplifiers or IEPE powered sensors can be connected.



## Speech intelligibility

The Speech Transmission Index (STI) is a proven and reliable tool for the objective evaluation of speech intelligibility. The Nor145 and Nor150 support both standardised measurement methods according to IEC 60268-16: the STIPA method and the full STI measurement via impulse response (SweptSine).

Performing a STIPA measurement is quick and easy: simply load the STIPA app, calibrate the excitation signal, and start the measurement. Within moments, the STI value is displayed, providing fast and accurate insight into speech intelligibility.

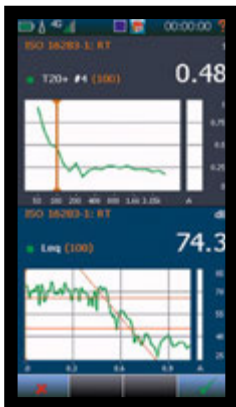


## Reverberation time

The Nor145 and Nor150 are ideal for room acoustics measurements, with a focus on the key parameter: reverberation time—the time it takes for the sound pressure level in a room to decay by 60 dB.

The instruments measures EDT, T15, T20, and T30, optionally in third-octave or octave bands. Audio recordings can be captured simultaneously for full documentation. Averaging and regression line adjustments can be performed directly on the device, providing immediate, accurate results in the field.

All three standard measurement methods are supported: Interrupted Noise, Impulse Response, and SweptSine, making the Nor145 and Nor150 versatile solutions for professional room acoustics analysis.



## Building Acoustics

The Nor145 and Nor150 provide complete building acoustics project management and evaluation in accordance with EN ISO 16283-1/-2/-3. Evaluation according to EN ISO 717-1 and ISO 717-2, including single-number ratings such as  $R'w$ ,  $DnT,w$ , and  $L_{n,w}$ , can be performed directly on the instrument. Additionally, national standards such as DIN, BS, ASTM among others. All aspects of measurement, averaging, and evaluation—including the calculation of single-number ratings such as the building sound insulation index  $R'w$ —can be performed directly on the handheld device. No external control unit is required.

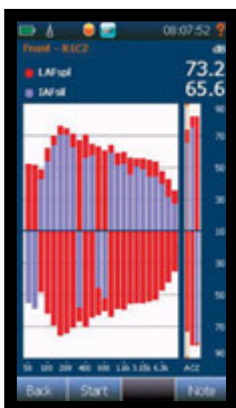
The free NorConnect software allows seamless transfer of measurement data and lets you generate complete reports with a single click. More comprehensive reporting and calculation is supported in Nor850 building acoustic analysing and reporting software.



## Sound Intensity

Equipped with the intensity option and the Nor1290 intensity probe, the Nor150 is one of the most advanced tools available for all types of sound intensity measurements, including sound power (ISO 9614-1/-2) and sound insulation (ISO 15186-2).

Using Norsonic's proprietary method for phase-response correction in sound intensity analysis, the Nor150 can measure the entire frequency range accurately with just a single 12 mm spacer—streamlining the measurement process without compromising precision.



# General measurements

## Occupational safety/sound power

In Sound Level Mode, all key parameters required for applications such as occupational noise assessment, noise nuisance monitoring, sound power determination (ISO 3744 or similar standards), and general noise surveys are captured simultaneously within a single measurement range. Simply load the appropriate app—or a user-defined app tailored to your specific application—calibrate the instrument, and start measuring.

Measurement data is available directly in an open text format, or can be conveniently analysed using Norsonic software in accordance with the relevant standards.

The Nor150, with its two measurement channels, enables synchronous measurements using two microphones, two accelerometers (for structure-borne sound investigations), or one microphone and one accelerometer (for source identification and correlation between airborne and structure-borne sound).



With a wide frequency range of 0.4–40 kHz, both instruments are also ideal for infra- and ultrasound measurements, provided a suitable microphone and preamplifier is used.

Level-versus-time recordings can be captured with a resolution as fine as 5 ms, and multiple time curves with different resolutions (e.g., 125 ms and 1 min) can be stored in parallel for broadband parameters such as LAeq / LAFmax and all frequency bands.

The pause function allows direct removal of background noise from the measurement, including flexible backward deletion. This minimises—or even eliminates—the need for post-processing, saving valuable time.

For comprehensive documentation, audio recordings, voice and text notes, photos, and up to 10 user-defined markers per user app can be integrated directly with the measurement data.

In addition to A, C and Z weighting, a set of calculated networks is provided such as B and G. In ultrasound mode, AU is added. Additionally, you may define your own frequency networks.



# Environmental Noise Analysis

## Key features

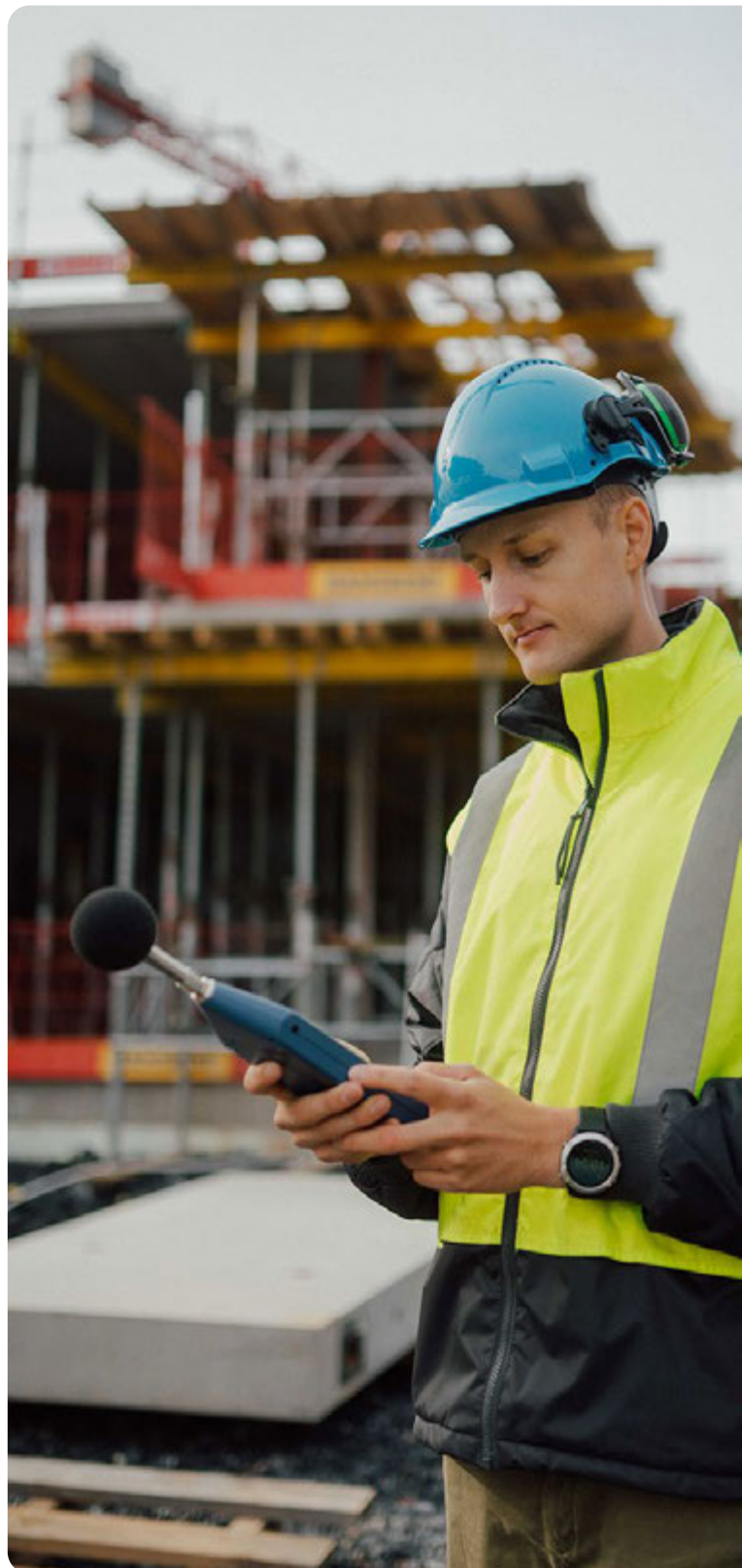
- Twin time profiles with resolutions from 5 ms and additional moving report with trigger capability.
- Extensive trigger system for reports, audio recording, camera, and digital output lines.
- Voice, text, and picture notes.
- 5 independent event triggers (LDEN support).
- Automatic detection of impulsive noise (ISO/PAS 1996-3:2022).
- Advanced marker management.
- Full remote control via NorVirtual app.
- Seamless connection to NorCloud for unattended monitoring and reporting.
- Graphical back erase / pause function (0–20 s).
- Audio pre-trigger (0–120 s).
- Integration with post-processing programs and Excel.
- API interface for system integrators.

Both the Nor145 and Nor150 are ideal for all types of environmental noise measurements, whether attended or unattended, single or dual channel.

The Nor145, with its built-in 4G/LTE modem and seamless connectivity to NorCloud, is often the preferred choice for most environmental applications, offering easy data transfer and remote monitoring.

Attended measurements are straightforward, with markers, audio recordings, and event-triggered pictures. The large 4.3" display provides all necessary information at a glance, and up to 60 measurement parameters can be logged simultaneously.

The sophisticated marker management system supports up to 10 user-defined markers, simplifying post-processing and reporting. Event-triggered audio recordings and pictures further enhance the utility of the instruments for attended measurements.



The advanced trigger system allows different trigger levels for Day, Evening, and Night, supporting five independent event triggers, LDEN calculations, and automatic detection of impulsive noise (ISO/PAS 1996-3:2022).

The Nor150, with its dual-channel capability, expands measurement options, enabling synchronous recordings with two microphones or accelerometers. The built-in GPS tags measurement locations and synchronises clocks for applications such as blast monitoring or multi-unit setups.

NorVirtual, the smartphone app, provides full remote control of the instrument. Pictures and voice notes captured on your smartphone are automatically transferred to the device and bundled with the measurement data. Event-triggered control of your smartphone camera—or any IP camera—further enhances documentation capabilities.

Both instruments integrate seamlessly with NorCloud, Norsonic’s noise monitoring and reporting software, making short- or long-term unattended monitoring simple and efficient.

## Nor850 Reporting Software – General Analyser Modul

The Nor850 General Analyser module is the new replacement to NorReview and offers a powerful analysis environment for post-processing, visualisation, marker management and calculations, and reporting of acoustic measurement data across a wide range of applications.

- Advanced analysis of time, frequency, and statistical data from recorded measurements.
- Flexible tools including spectra, time histories, spectrograms and statistical distribution.
- Perform measurements using Nor850 as a measurement tool with access to powerful marker handling and recording.
- Tonality according to ISO 20065 and DIN 45681.
- Export of results to Excel using customisable report templates.
- Consistent workflow for reviewing, validating and documenting measurements.



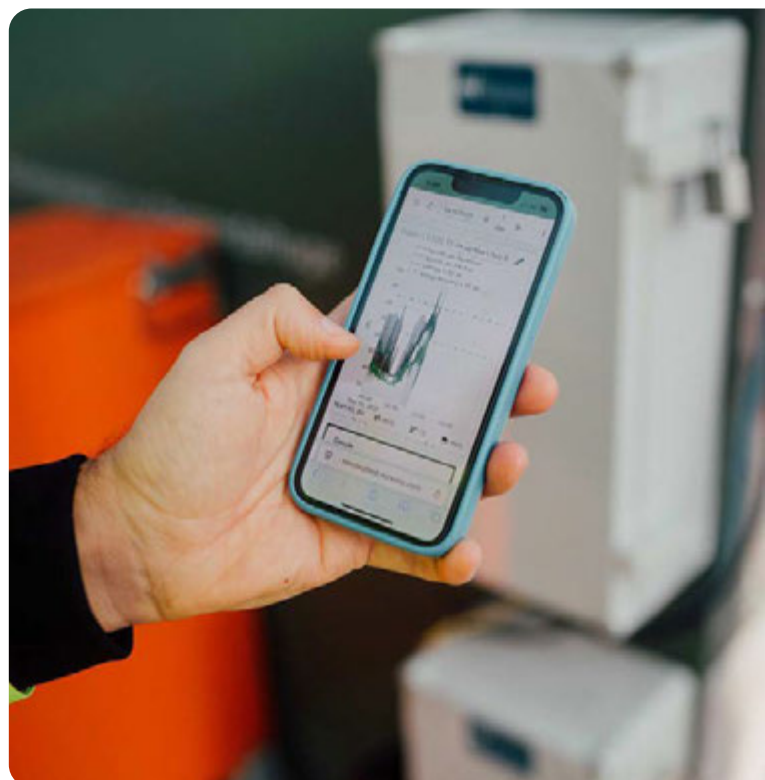
## Well connected - thanks to on-board 4G modem

The Nor145 is equipped with an integrated 4G modem and an on-board GPS module, fully configured and seamlessly integrated into the device firmware. No external devices or complex setups are required. With a single click on “NorCloud” in the device menu, your instrument is immediately accessible from anywhere in the world.

The Nor145 also supports direct connections via its full-featured LAN interface or on-board WiFi, allowing flexible integration with external modems or gateways.

Through NorCloud, all settings can be managed remotely via any PC, tablet, or smartphone - no locally installed software is needed. Measurement data can be monitored live, reports can be automatically generated, and real-time alarm notifications can be sent directly to your devices.

For those who prefer a custom solution, the Nor145 can be easily integrated into your own software using a user-friendly API.



For permanent installations, the Nor145 can be supplied as a NorCloud front-end unit, pre-installed in the weatherproof Nor1545 measurement cabinet. The system includes a UPS (Uninterruptible Power Supply) and a solar (PV) charge controller, allowing operation from mains power or solar panels. This provides a ready-to-deploy solution for long-term outdoor noise monitoring.

Optional attachments such as a weather station and Noise Compass (direction detection) can be connected directly.

The outdoor microphone Nor1216 (with heating) or Nor1217, weighing only 300 g, allows for effortless deployment using lightweight tripods, making setup fast and convenient even in challenging environments.

The Nor1217 is a cost saving outdoor microphone using the preamplifier and microphone supplied with the noisemeter. It has the same acoustic performance and environmental protection as the Nor1216, except for the heating feature.



# Building Acoustics

The Nor145 / Nor150 provides complete building acoustics project management and evaluation in accordance with ISO 16283-1/-2/-3 and national regulations such as DIN 4109. Measurement, averaging, and evaluation—including calculation of single-number ratings such as the building sound insulation index  $R'w$ —can be performed directly on the handheld device, with no external control unit required.

This direct operation is particularly advantageous for spatial averaging via manual panning, offering better control compared to using a smartphone or tablet. The pause function with backward deletion allows disturbing noises to be removed immediately, eliminating the need to discard or repeat the measurement.

Measurement reports can be generated using the free NorConnect software, while the more advanced Nor850 building acoustics software offers comprehensive reporting capabilities, including multi-project management, a database archive, and many other features.

Both the Nor145 and the Nor282 amplifier feature internal batteries and on-board WiFi. The Nor282, can be fully controlled via WiFi from the Nor145, eliminating the need to enter the room or connect cables between the devices.

Alternatively, both the Nor145 and Nor282 can be controlled via the free NorVirtual app on a smartphone or tablet, also using WiFi, providing flexible and convenient operation in the field.

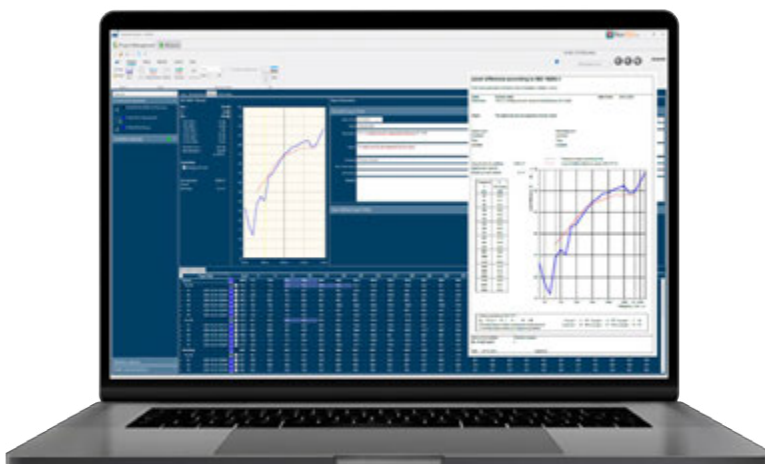


## Nor850 Reporting Software Building Acoustics Module

The Nor850 software extends the capabilities of the Nor145/Nor150, offering a comprehensive suite of advanced features for professional building acoustics:

- Accurate measurements in fluctuating noise environments using SweptSine.
- Reliable measurements despite high background noise levels.
- High sound insulation measurements using SweptSine or third-octave noise.
- Building services system evaluation in accordance with ISO 10052 and ISO 16032.
- Measurement and calculation of  $R'w$  in fine resolution (1/12 or 1/24 octave).
- Sound insulation from intensity measurements according to ISO 15186-2.
- Complete data management system for seamless storage, retrieval, and reporting.

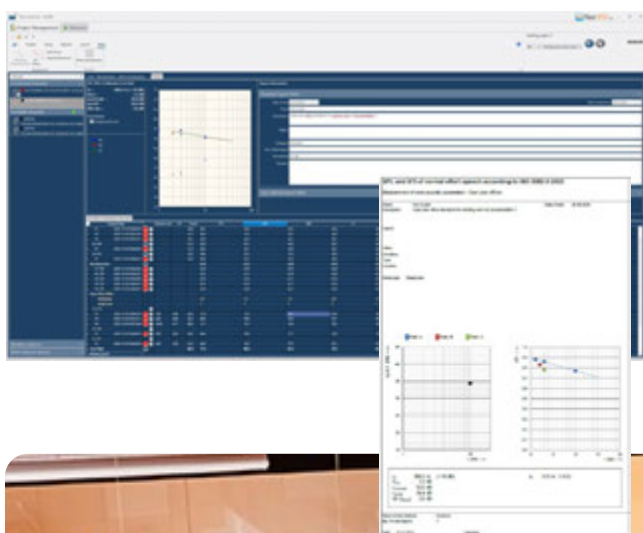
The Nor850 provides a powerful, all-in-one platform for advanced building acoustics analysis, ensuring accurate results even in challenging measurement conditions.



# Room Acoustics

The Nor145 and Nor150 are ideal tools for room acoustics measurements. Key parameters such as EDT, T15, T20, and T30 can be measured in 1/3- or 1/1-octave bands, and a high-fidelity audio recording can be captured simultaneously. Averaging and regression line adjustments are performed directly on the device, providing immediate, accurate results in the field.

The instruments support all three standard reverberation time measurement methods: noise, pulse, and SweptSine, offering full flexibility for different acoustic environments.

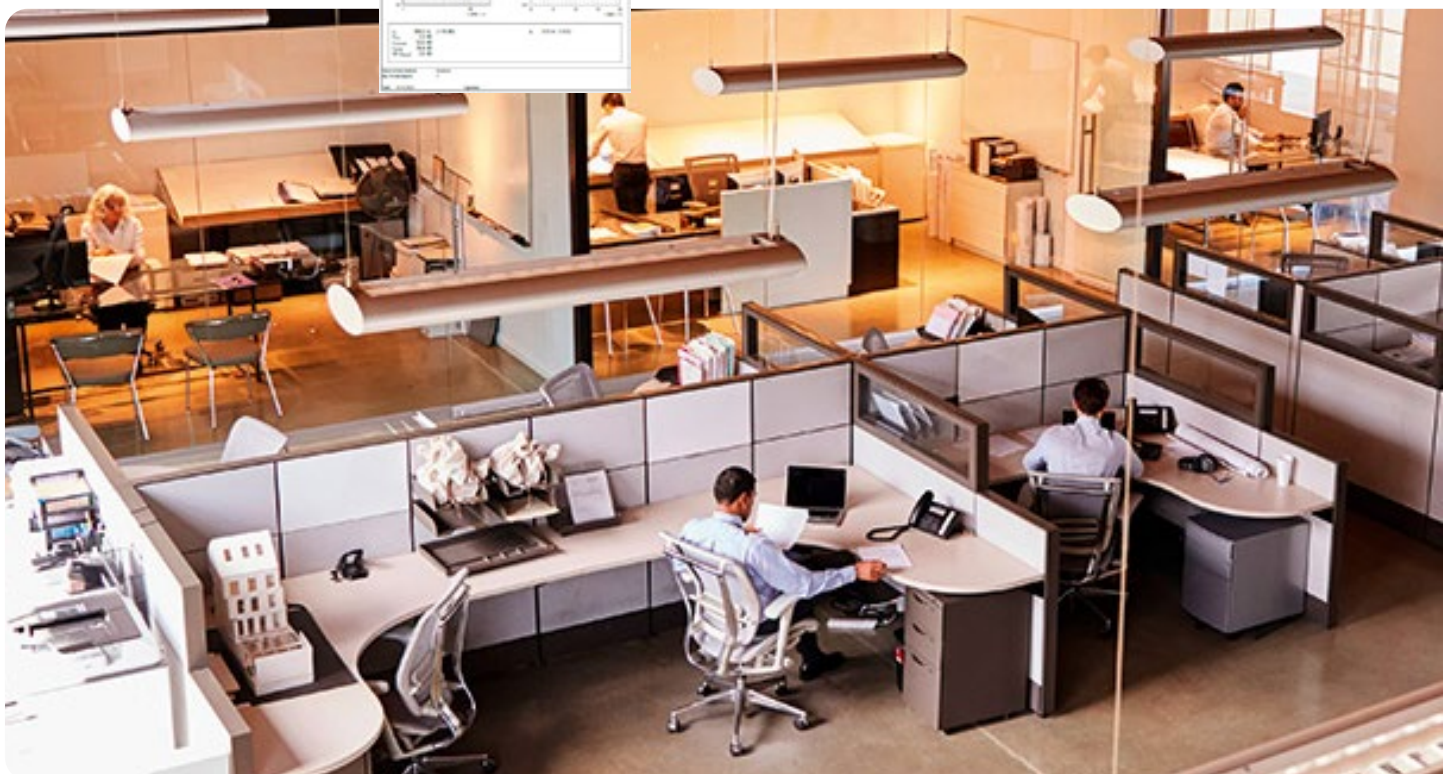


## Nor850 Reporting Software Room Acoustics Module

The Nor850 room acoustics module provides complete evaluation according to ISO 3382-2 (ordinary rooms) and ISO 3382-3 (open-plan offices), including automated generation of detailed test reports with all relevant values, such as D2, S; Lp,A,S,4m; rD, rC; Lp,A,B.

The advantages:

- Communication with Nor145 sound level meter and Nor282 power amplifier via WLAN.
- No cable connection between sound level meter, power amplifier and laptop/tablet required.
- Transmission of the digitised impulse response (in WAV format) via WLAN.
- No sound card and therefore significantly less parameterisation required.
- Complete measurement and evaluation according to ISO 3382-3.



# Sound Intensity

## Applications

- General sound intensity measurements.
- Sound power measurements according to ISO 9614-1/-2.
- Sound insulation measurements according to ISO 15186-2.
- Sound source localisation and sound mapping.
- Sound intensity measurement methods to determine sound power levels from transformers, reactors, and their cooling devices according to IEC 60076-10.

## Key features

- Measurement of the entire frequency range with a single 12 mm spacer.
- Integrated routines for sound power calculation according to ISO 9614-1/-2.
- Live analysis and display of all field indicators and warnings directly on the device.
- Pause function with individual backward deletion during measurement.

## Remote control via smartphone for convenient field operation

The Nor150, equipped with the intensity option and the Nor1290 intensity probe, is a state-of-the-art tool for all types of sound intensity measurements. It supports sound power determination according to ISO 9614-1/-2 and sound insulation measurements according to ISO 15186-2.

Using Norsonic's proprietary method for phase-response correction, the entire frequency range can be measured with just one 12 mm spacer, simplifying setup while maintaining accuracy.

Measurements can be controlled via a smartphone mounted on the intensity probe, allowing start/stop control and real-time display of measurement values directly on the probe. Alternatively, the probe can be connected directly to the Nor150 for traditional operation.

The pause function with level-time curve display and backward deletion makes the system particularly practical for field use, ensuring clean and reliable measurements even in complex environments.

## Nor850 Reporting Software Sound Intensity Software

- The Nor850 serve as the final link in the Sound Intensity measurement system, providing a powerful and flexible toolset for sound power determination, post processing and visualisation of data.
- Sound power determination in accordance with ISO 9614-1, -2 and -3.
- Flexible measurement setups for different surface areas and geometries.
- Frequency resolved results in third-octave and octave bands.
- Integrated data management for efficient analysis, documentation and reporting.
- Intuitive GUI with powerful visualisations of measured data, results and other related functions.



## Other applications

### Infrasound

With 1/3-octave and FFT frequency analysis down to 0.4 Hz, the Nor145 and Nor150 provide ideal conditions for infrasound investigations.

Full-fidelity audio recording at 24-bit / 4.8 kHz is provided, enabling further analysis using PCI tools if required.

Please contact us for advice on selecting the appropriate measurement microphone and preamplifier for this application.

### Ultrasound

The Nor145 and Nor150 is designed for occupational safety experts. In addition to standard safety parameters, it supports ultrasound measurements according to VDI 3766 (with a ¼" microphone).

Broadband parameters can be measured in parallel with frequency weightings A, C, Z, and AU, while 1/3-octave and FFT frequency analysis is performed up to 40 kHz. Additionally full-fidelity audio recording is provided (24-bit / 96 kHz).



### LowNoise

The standard measurement microphone supplied with the instruments has a self-noise of approximately 16 dB(A). For very low-level measurements, a special low-noise microphone can be used. For example, the GRAS 47HC low-noise microphone has a self-noise of just 6.5 dB(A) and can be connected directly to the sound level meter.

### API Support

Norsonic offers full support for system integrators who wish to interface the Nor145 and Nor150 instruments with their own software platforms. For more information, please consult the manufacturer or your local Norsonic distributor.



### Vibration

All measurement functions described in this brochure are fully supported whether a microphone or a vibration sensor is connected. Both instruments supports IEPE transducers. The dual channels of the Nor150 allow synchronous measurements using:

- Two accelerometers (for sound bridges between components).
- One microphone and one accelerometer (for source localisation and correlation between acoustic and vibration signals).

# Nor145 features and option overview



## Nor145 BASIC

The basic Nor145 platform provides powerful, professional measurement capabilities out of the box:

### Measurement Performance

- Singlerange Class 1 sound level meter .
- Simultaneous Leq, Lmax, Lmin, LE, Lpeak (Taktmax).
- Simultaneous A/C/Z frequency weighting.
- Simultaneous F/S/I time weighting.
- 1/1 and 1/3octave analysis (6.3 Hz – 20 kHz).
- Support for vibration sensors with engineering units.
- Measurement time from 1s to 7 days.

### Operational Features

- Logging Profile A: Levels vs. Time, 5 ms – 24 h resolution.
- Frequency logging.
- Audio recording with pre-trigger.
- Manual / Auto / Repeat / Synchro storage.
- Delay, clock, external, and one event threshold trigger.
- Builtin WLAN (WiFi), LAN and USB.
- NorVirtual (remote SLM control).
- Display views: SLM, L/f, L/t, Statistics (Percentiles).
- Signal generator (optional depending on package).
- STIPA - IEC 60268-16:2020 (edition 5).
- Reverberation Time (RT), impulse method (EDT/T15/T20/T30).
- Voice notes.
- 10 user defined markers.

### Connectivity & System Integration

- WLAN, LAN, USB.
- Optional GPS, NorCloud, LTE modem
- Weather station and noise compass support.
- Remote API (requires DLA).

## Option Packages Overview

The Nor145 can be tailored to specific applications using four structured option packages.

### ENV Advanced Package

Enhances environmental monitoring functionality with a rich set of advanced analytical tools.

#### Adds:

- Additional Logging Profile B.
- Moving time profile.
- Onboard impulsivity detection (KI, ISO 1996-3).
- Enhanced display views: key legends.
- Text notes.
- Calculated networks (B/G/Individual).
- DeltaLeq calculation.
- Infrasound (0.4 Hz).
- Audio recording (with multiple individual event triggers).
- 10 user defined markers.
- External IP camera support.
- Weather station & noise compass support.

Perfect for: environmental consultants, municipalities, noise mapping professionals.

### BA Basic Package

Introduces essential building acoustics functionality.

#### Adds:

- Reverberation Time in 1/3 octave.
- RT noiseinterrupted method.
- RT audio recording.
- Repetitive RT measurements.
- Signal generator.
- Building Acoustics ISO 16283 rating.
- Service equipment (ISO 10052 / 16032).

Suitable for: building engineers, consultancy firms, acoustic testers.

### BA Advanced Package (requires BA Basic)

Fullscale building acoustics toolkit with advanced measurement control.

#### Adds:

- National standard ratings (ASTM, DIN EN ISO, etc.).
- Include/exclude/adjust functionality.
- Pause/Continue with backerbase.
- WiFi remote access to Nor282 amplifier.
- Nor850/BAM support (swept sine, ISO 16032, etc.).

Designed for: laboratories, premium consultants, standard compliant testing authorities.

### Consultant Advanced Package

A complete package designed for high-end consulting firms requiring both ENV and building acoustics capabilities.

#### Combines:

- All ENV Advanced features.
- All BA Basic features.
- All BA Advanced features.
- Full support for Nor850 systems (openplan offices, BAM swept sine measurements).
- FFT

Ideal for: multidiscipline acoustics consultancies.

### Optional Accessories & Addons

- GPS module.
- LTE/4G modem (no retrofit).
- Noise Compass.
- Weather station.
- FFT module (if not included via package).
- Remote API (DLA required).
- Accredited calibration (optional).

# Nor150 features and option overview

## Nor150 BASIC

The basic Nor150 platform provides powerful, professional measurement capabilities out of the box. Note: Microphone set channel 2 is not included.

### Measurement Performance

- Option 2: Channel 2, included in Nor150.
- Single range Class 1 sound level meter.
- Dual channel sound and/or vibration.
- Simultaneous Leq, Lmax, Lmin, LE, Lpeak (Taktmax).
- Simultaneous A/C/Z frequency weighting.
- Simultaneous F/S/I time weighting.
- Support for vibration sensors with engineering units.
- 200V /Prepol /IEPE supply.
- High level feature - 10dB extended range.
- Measurement time from 1s to 7 Days.

### Operational Features

- Logging Profile A: Levels vs. Time, 5 ms – 24 h resolution.
- Logging Profile B: Levels vs. Time, 1 - 60 min resolution.
- Moving time Profile: Levels vs. Time, 1 s - 1h resolution.
- Statistics (Percentiles).
- ISO1996-3 Onboard impulsivity detection (Ki) function.
- Voice & text notes.
- Manual / Auto / Repeat / Synchro storage.
- Pause/Cont with back-erase.
- Measurement Delay, clock, level and external trigger.
- NorVirtual (remote SLM control).
- Display views: SLM, L(t), Statistics (Percentiles).

### Connectivity & System Integration

- LAN, USB.
- Support NorCloud.
- Weather station and Noise Compass support.

## Option list for Nor150

**Option 1:** Built in GPS and camera. Not available as a retrofit and must be specified at the time of ordering the instrument.

**Option 3:** 1/1 and 1/3 octave filters 0.4 - 20 kHz.

**Option 4:** Audio recording and markers including 1 event trigger.

**Option 5:** Sound Intensity mode supporting measurements in accordance with ISO 9614-1 and -2. Includes web server for remote control and display of measurement results on a smart phone.

Requires options 2 and 3.

**Option 7:** Signal Generator.

**Option 8:** Reverberation Time decay and calculation of T20 and T30 based on impulse excitation. Requires option 3.

**Option 9:** Complete Building Acoustic mode ISO- 16283 as well as sound insulation indices calculated in accordance with ISO-717/1 and /2.

Requires options 3, 7, 8.

**Option 11:** Enhanced noise assessment package including internal web server for remote control via smartphones, pads and PC and additional four triggers for independent setting of different trigger levels during a day. Requires option 4.

**Option 12:** NorCloud for noise monitoring. Requires option 4, and 11.

**Option 13:** FFT option. Requires option 3.

**Option 14:** Ultrasound option including 1/3 octave filters to 40 KHz, 1/1 octave to 31.5 KHz and AU network. Requires option 3 and V5 or higher.

**Option 15:** Remote API. Requires a DLA (Developer License Agreement).

**Option 17:** STIPA. Requires option 3.

**Option 18:** EMERGENCE option. Requires ENV-ADV and V6.

## Option packages

**Nor150 Advanced Level option kit**  
(e.g. for ENV) including options: 3, 4, 11, 12.

**Nor150 Building Acoustic option kit**  
incl. options 3, 7, 8, 9.

**Nor150 Consultant package option kit**  
including options 3, 4, 7, 8, 11, 12, 13.

**Nor150/Sound Intensity option kit**  
including options 2,3,5, Sound Intensity probe Nor1290, residual intensity verification coupler Nor1294, hard case, Nor850/Suite and Nor850/Sl.

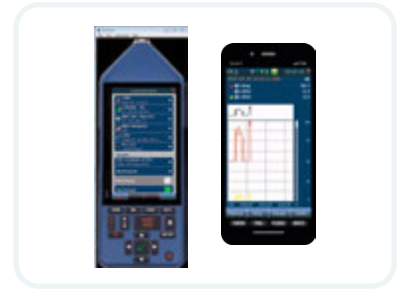
## Software



Nor850



NorCloud



Norvirtual / Norvirtual APP

## Accessories



Calibrator Nor1255

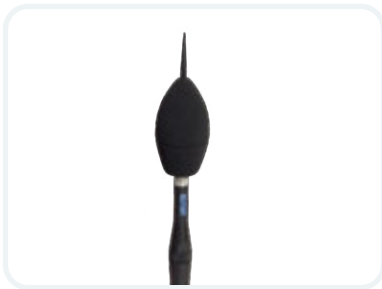


Calibrator Nor1256



Extension cables

## Monitoring



Outdoor microphones



Outdoor enclosure Nor1545



Noise Compass Nor1297

## Building Acoustics



Power Amplifier  
Nor282



Dodecahedron  
Loudspeaker Nor283



Tapping Machine  
Nor277



Microphone boom /  
turntable Nor265A

# Specifications

## General

Class 1 according to IEC 61672:2014, IEC 60651, IEC 60804, IEC 61260, DIN 45657, ANSI S1.4, ANSI S1.11, ANSI S1.43

Sensor database (with sensor type, sensor name, serial number, sensitivity, calibration history, date of last laboratory calibration, Calibration laboratory name)

User setups as apps on start-up screen

Level values (with all frequency weightings & time constants): Leq, Lmax, Lmin, LE, LPeak, LFTM5, Ln

Frequency Ratings/Networks: A / C / Z / AU

Calculated networks: B / G / User defined

Parallel Time constants: F / S / I

Frequency analysis in 1/1 & 1/3 octaves:  
0.4 Hz – 40 kHz

Sampling rate (standard / ultrasound):  
48 kHz / 96 kHz

Reference spectrum

Level statistics / percentiles

One measuring range (120 dB dynamics)

Dynamic range RMS (dBA): 17 - 137 dB

Dynamic range Peak C: 45 - 140 dB

+10 dB extended measurement range (Nor150)

SD card: no limit (tested up to 512 GB)

LAN-interface

USB-interface (Host)

GPS on-board

WLAN on-board (Nor145)

4G-Modem on-board (Nor145)

Digital I/O

API-Interface Option

File-Push Service in Cloud

Battery (> 8 h / Li-Ion replaceable / 9-15 V DC output)

Dimensions (LxWxH, excl. microphone):

Nor145: 235 x 82 x 29 mm

Nor150: 240 x 82 x 39 mm

Weight (incl. microphone):

Nor145: 535 g

Nor150: 700 g

## FFT

1/3 octave in parallel with FFT

Sampling rate (Standard / Ultrasound):  
48 kHz / 96 kHz

Upper frequency Normal mode / Ultrasound mode:  
24 / 44 kHz

Resolution (Standard / Ultrasound): 1.46 Hz / 2.92 Hz  
(8192 / 16384 Line) / 2.93 Hz or 5.86 Hz

Auto spectrum, Linear Averaging, Hanning

## Occupational & Industrial hygiene

LAeq in parallell with PeakC

Reverberation time measurement

Ultrasound (AU and 1/3 octave to 40kHz)

## Environmental Noise Assessments

LAFTM5-LAeq and LAeq-LCeq

Pause function with flexible reverse delete time

10 freely definable markers per user app

Selectable response time for setting markers

Text and audio comments

Level vs. time resolution incl. multispectra:  $\geq 5$  ms

Level vs. time curves with 2 resolutions  
(e.g. 5 ms and 1 min)

Level vs. time curves also for 1/1 & 1/3 octave bands

Sound recording / Audio recording:  
WAV (8 / 16 / 24 Bit)

Pre-trigger for sound recordings: up to 99 s

Audio trigger thresholds for 5 day periods

Noise Nuisance Recorder Trigger switch

Support for Noise Compass / Weather station /  
IP camera

Support for Syscheck of microphones

## Building / Room Acoustics

### Reverberation time measurement

- Measuring parameters EDT, T15, T20, T30
- Frequency range 20 Hz - 20 kHz
- Measurement methods noise / impulse / swept sine
- Automatic repeats
- Adjusting the regression line
- Sound recording (WAV)
- Averaging evaluation Tmid according to EN ISO 3382-2

### Level measurement

- Noise or SweptSine measurement methods
- Pause function with reverse delete
- Sound recording (WAV)

### Noise generator

- On-board
- Control of the Nor282 from Nor145 (via WLAN)

### Project management and evaluation on-board:

- ISO 16283-1/-2/-3: D, Dn, DnT, R', L'n, L'nT, R'45°, etc.
- ISO 10052: LAFmax,n, LAFmax,nT, etc.
- National standards & special regulations (such as EN ISO, DIN 4109, BS, SIA, ÖS, ASTM, etc.)
- Post-processing (include/exclude average)

### Functions in combination with software Nor850:

- Measurement of fluctuating noise (SweptSine)
- Measurement with high background noise levels (SweptSine / third octave noise)
- Measuring high levels of sound insulation (SweptSine / third octave noise)
- Measurement and R' calculation in 1/12 or 1/24 octave
- Sound insulation from intensity measurements ISO 15186-2

## Sound Intensity

According to IEC 61043 class 1. Support measurements in accordance to ISO 9617 1 and 2 and ISO15186-2 in addition to generic use


Nor150SI-kit: intensity probe Nor1290, Intensity verifactory Nor1294, Case, cables and Nor850 SI post processing SW





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