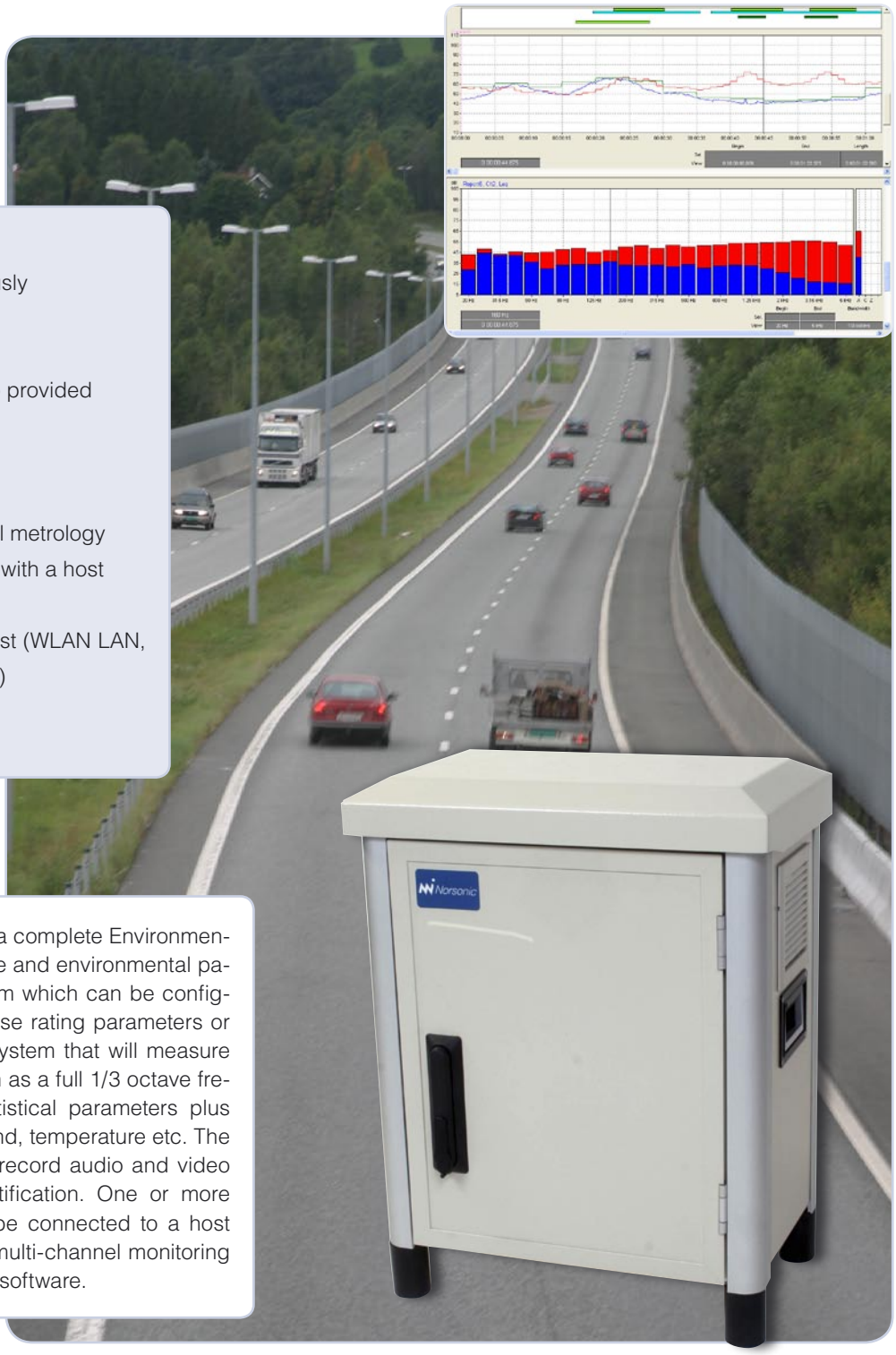
Environmental Monitoring Systems

Environmental Monitoring Terminal Nor1520
Control and data management software Nor1022
Calculation and reporting software Nor1026



Features

- Collects noise data continuously
- Continuous sound recording
- Continuous video recording
- Supporting weather data also provided
- Supports GPS
- Modular
- Rugged
- EU pattern evaluated for legal metrology
- Works both offline and online with a host
- Battery backup
- Enhanced data transfer to host (WLAN LAN, GSM, GPRS, ADSL and more)
- Pure tone detection

The Norsonic EMT Nor1520 is a complete Environmental Terminal for measuring noise and environmental parameters. It is a modular system which can be configured to measure just a few noise rating parameters or expanded into an enhanced system that will measure multiple noise parameters such as a full 1/3 octave frequency spectra including statistical parameters plus environmental data such as wind, temperature etc. The system can also continuously record audio and video to simplify noise source identification. One or more Environmental Terminals can be connected to a host computer to form a complete multi-channel monitoring system controlled by NorMonit software.

Norsonic

Norsonic is extending the environmental noise monitoring product portfolio with a new set of products that meets the increased demands of tomorrow's noise monitoring systems. The system consists of the Environmental Monitoring Terminal, EMT, Nor1520, the Control and data management software, NorMonit, (Nor1022) and the calculation and reporting software, NorReview, (Nor1026).

The system is scalable from a single noise monitor that operates off line as a self contained unit to a fully integrated multi-channel noise monitoring system reporting data on line to a host computer.

A wide range of noise parameters can be measured in addition to continuous sound and video recording. The system also supports all types of weather parameters and other external transducers such as GPS.

Every effort has been made to make a fault tolerant system. It starts with the EMT featuring a double walled aluminium cabinet thereby preventing the system from over heating and the buildt in backup battery that will cover mains power interruptions. Continues with the noise data being measured using the well known Nor118 sound analyser, which has been independently type approved by PTB. Then it ends with the NorMonit software that should the system to loose connection between the host and the noise terminal for up to 24h will, as soon as the connection is re-established, pick up the data transfer.

Environmental Monitoring Terminal Nor1520

The EMT is a self-contained unit that can work in either off line or on line modes. It is controlled using the NorMonit SW, a controlling and data management software running locally on the EMT in off line mode or on the host computer in on line mode controlling one or more EMT's.

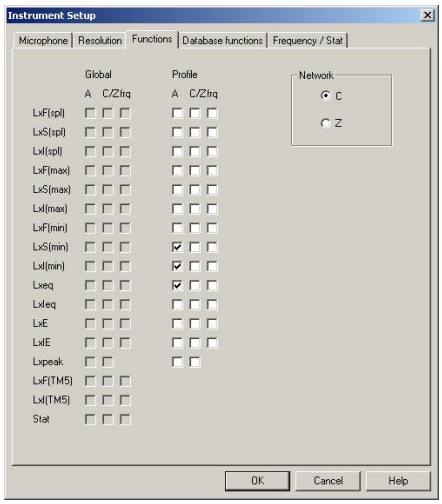
The SW is used to configure and control parameters such as the sound measuring indices, audio and video recording, microphone calibration, data transfer and back up storage.

You may set up to 6 different set-ups every day in order to perform more detailed analyses at predefined intervals during the day. Every day may also be treated differently. You may for example only measure during the working days and put the system in sleep mode during the weekend or during the night.

Off-line is normally used in semi-permanent solutions where the EMT is placed in the field to monitor the noise for a limited period of time. The EMT is then set-up to collect the data and to automatically copy the data onto a backup storage device that is collected at regular intervals such as once a week. Alternatively the data can be downloaded to a laptop on site.

On-line mode is used when EMT is connected to a host computer running NorMonit Software collecting data from one or many EMTs. The host computer can either download the data at regular intervals or be connected continuously displaying the data in real time using the NorReview software with the QuickView feature. NorReview may also generate reports and perform advanced calculations and event analyses on the measured data.

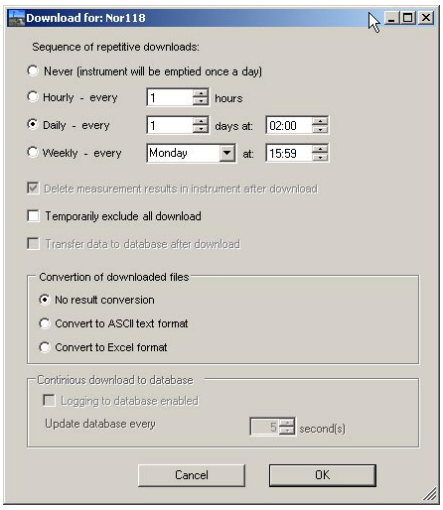
Many applications require the data to be transferred over a short distance, such as across a road, a railway, a racing track or at a construction site. In this case a good alternative is to use a wireless technology such as WLAN. The distance between the EMT and the host is then limited to a few hundred meters. Other applications require data transfer over a long distance. For this purpose the system supports the use of broadband technology like LAN, ADSL, GPRS, EDGE or similar systems. The system also gives the flexibility to use other connection protocols.



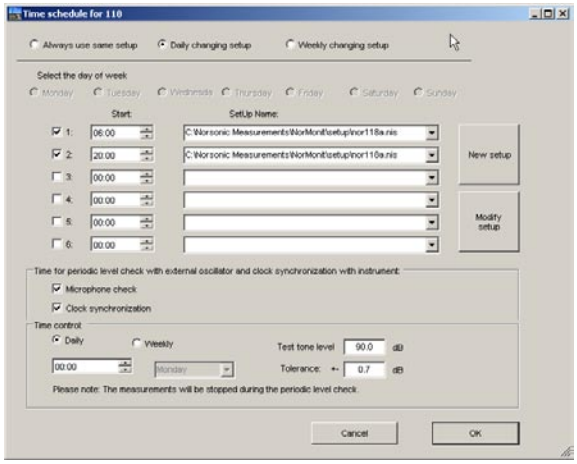
NorMonit Measurement parameter setup menu

Measured noise parameters

The noise is measured using the well-known sound analyser Nor118. Type approved by PTB, Germany, as well as several other national laboratories. Nor118 is capable to measure a wide range of noise parameters needed in a noise monitoring system, such as L_{eq}, L_{max}, L_{min}, L_{Spl}, L_{peak}, L_n and 1/1 or 1/3 octave spectra. Available spectral weighting functions are A, C and Flat Z. Available time constants are Fast, Slow and Impulse.



NorMonitData management menu



NorMonit Time schedule setup menu

The benefit of using Nor118 in a noise monitor is that the annual calibration cost and down time is kept on the lowest possible level since it is a standard sound analyser that can easily be substituted with another one.

The Noise data is stored locally in the instrument in case of a data transfer failure or a failure in the EMT system computer. Data is erased in Nor118 when a confirmed data transfer is done

Sound and video recording

Noise source identification is often an important issue in order to determine the source of a noise pollutant. Audio and video can be continuously recorded by use of the internal system computer. The recording quality of the noise and video can be selected to limit the amount of data storage and speed up the transfer. The playback of the sound and video is easily done by use of the NorReview application SW. The sound and video are displayed as separate markers in the L/t graph. Simply clicking on the desired marker makes the playback of the sound or video.

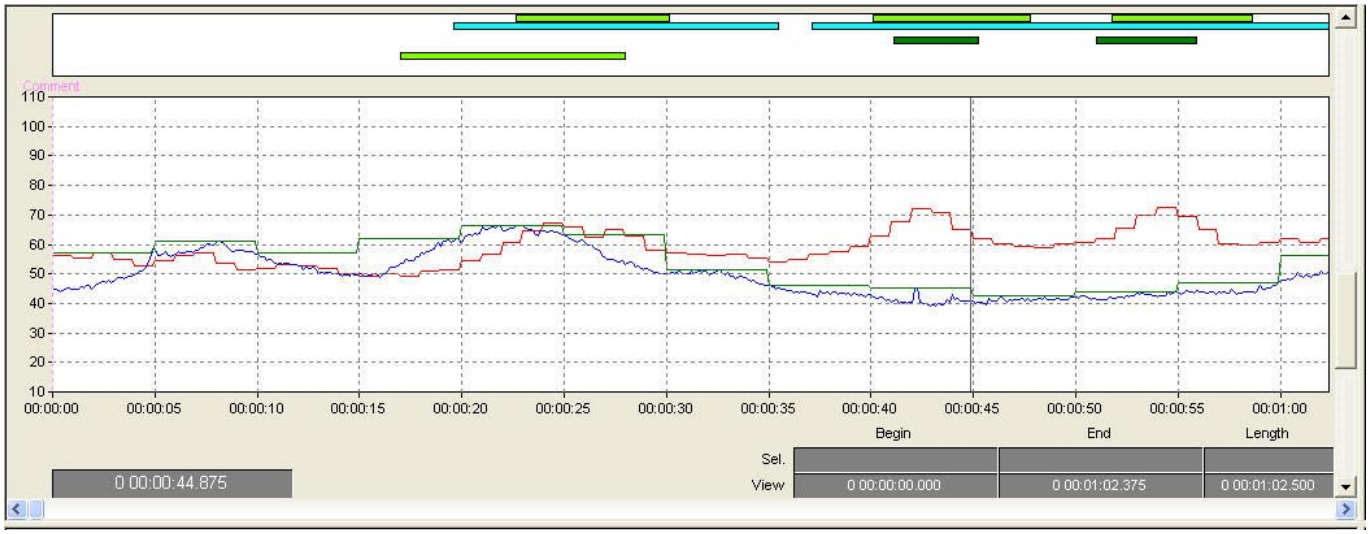
NorReview -Displaying, calculation and reporting software Nor1026.

NorReview is a powerful tool used to display data on line from the environmental terminals. The same software is also used for advanced calculation and reporting such as L_{den} calculation according to ISO9613-2. An advanced marker identification system is built in, allowing the user to set individual markers and treat each marked area differently; such as report them separately or exclude them from the overall calculation.

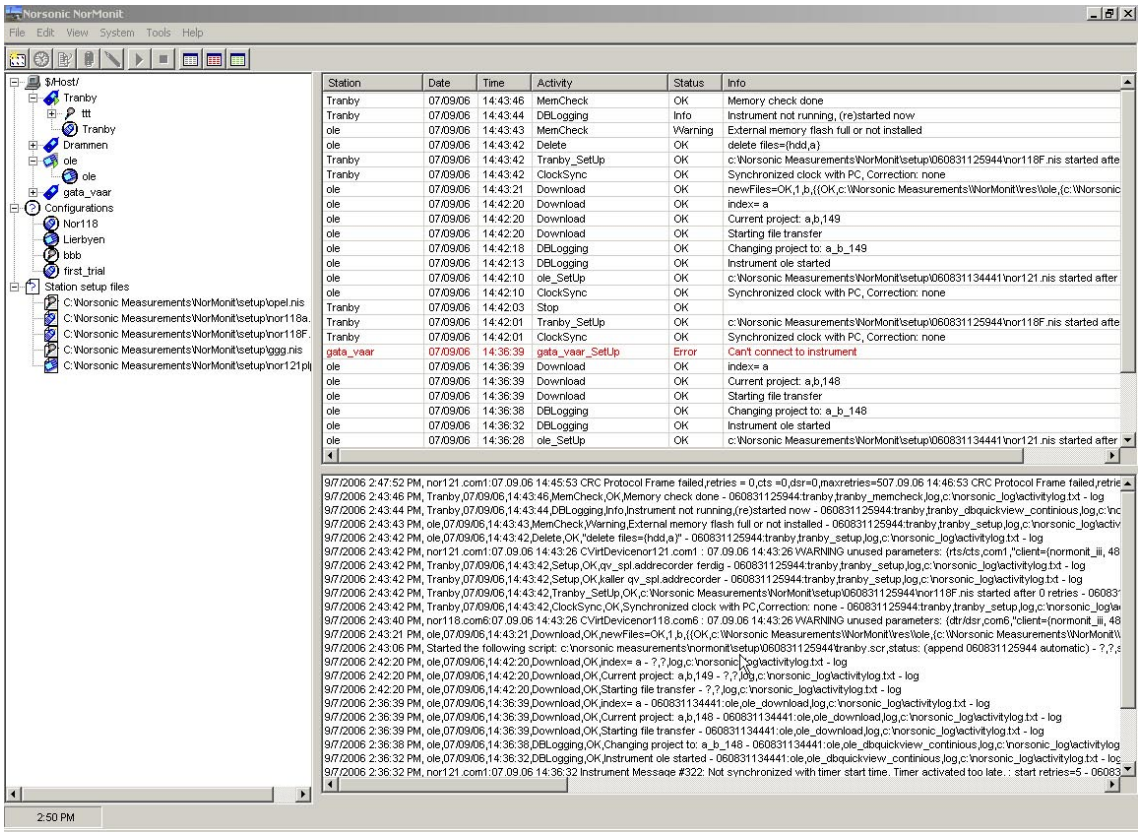
Data are displayed on line as level vs. time and as level vs. frequency if required. Playback of recorded sound or video is easily done by clicking on markers in the L/t display.
For more information see separate datasheet.

Measuring Environmental parameter and GPS

The EMT is prepared for collecting data from a weather station. The system can record up to 25 different environmental parameters and 3 parameters from external sensors like an RPM counter, torque meter etc. It is also prepared for using a GPS for position identification and time synchronization.



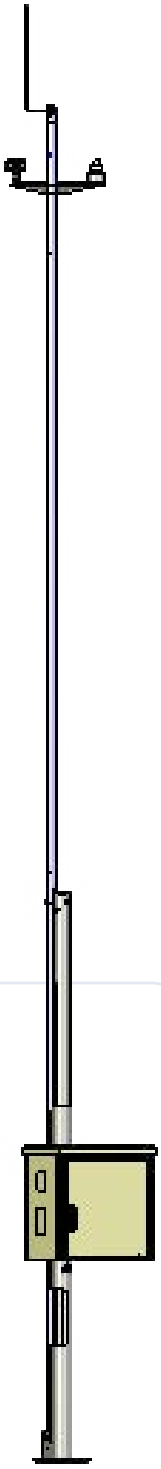
L/t graph. Video and audio markers are shown as horizontal lines in the separate frame above the L/t picture.



NorMonit main menu - The NMT's are visualised in a tree structure. In the upper right frame the user can select between and actively log, error log or calibration log The lower right frame shows the detailed communication log.

Accessories

Norsonic has a complete range of accessories for a noise monitoring system, like outdoor microphones, microphone masts, microphone cables, weather stations, mounting brackets etc. We have long experience in making complete turn key measurement solutions in the field of environmental monitoring.



Special system solutions

Customers have often special requirements that can not be covered by standard solutions. Norsonic has supplied custom made systems since the company was founded in 1967. Often only a small adaptation is necessary to fulfil a special need. Our technical solutions are modular and flexible, designed to meet the customer's requirements.

A typical example is a gas terminal in England where the customer needed to measure temperature gradient over a 9 metre span in addition to the noise level. Norsonic developed a 10m microphone mast, and adapted the software to fulfil these requirements. Similarly a project wanted to have a built in flat screen in the noise terminal in order to collect data offline in the field. For this application the environmental terminal Nor1520 was made larger to make a 17" flat screen to fit in.

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