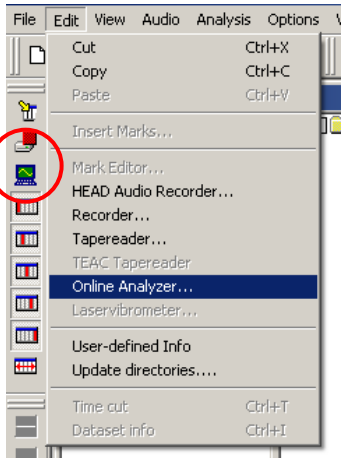
ATP 08 Online Analyzer

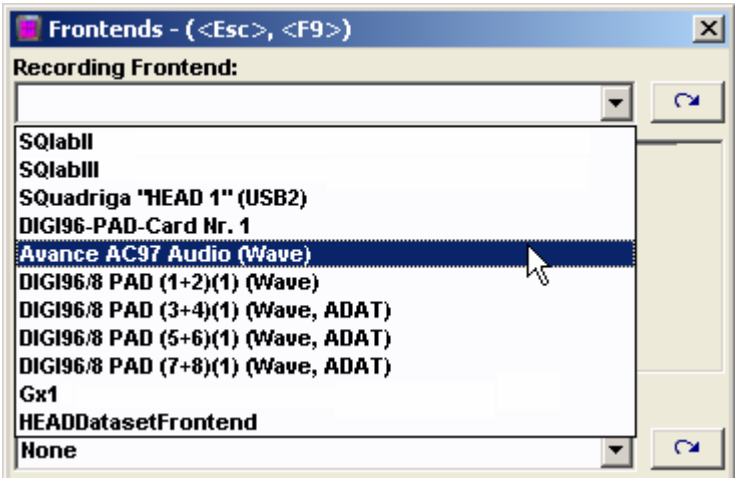
Introduction

With the ArtemiS Online Analyzer (ATP08) you can analyze signals in real time with an extensive range of analysis functions, and you can average the signals and save the analysis results. The signals to be analyzed can be recorded with various frontends. A common user interface is displayed for all supported recording hardware, which adapts to the specific requirements of each respective frontend. The most important windows of the Online Analyzer are arranged in fixed positions relative to each other. The main functions are accessible via a simplified keyboard layout displayed on the screen, allowing the direct operation of the program without the need to learn keyboard shortcuts ("hotkeys"). The goal of this concept is to allow efficient operation even with notebook PCs and in locations where mouse operation is not practical. The display of input signals and the corresponding analysis results are fully integrated into the user interface.

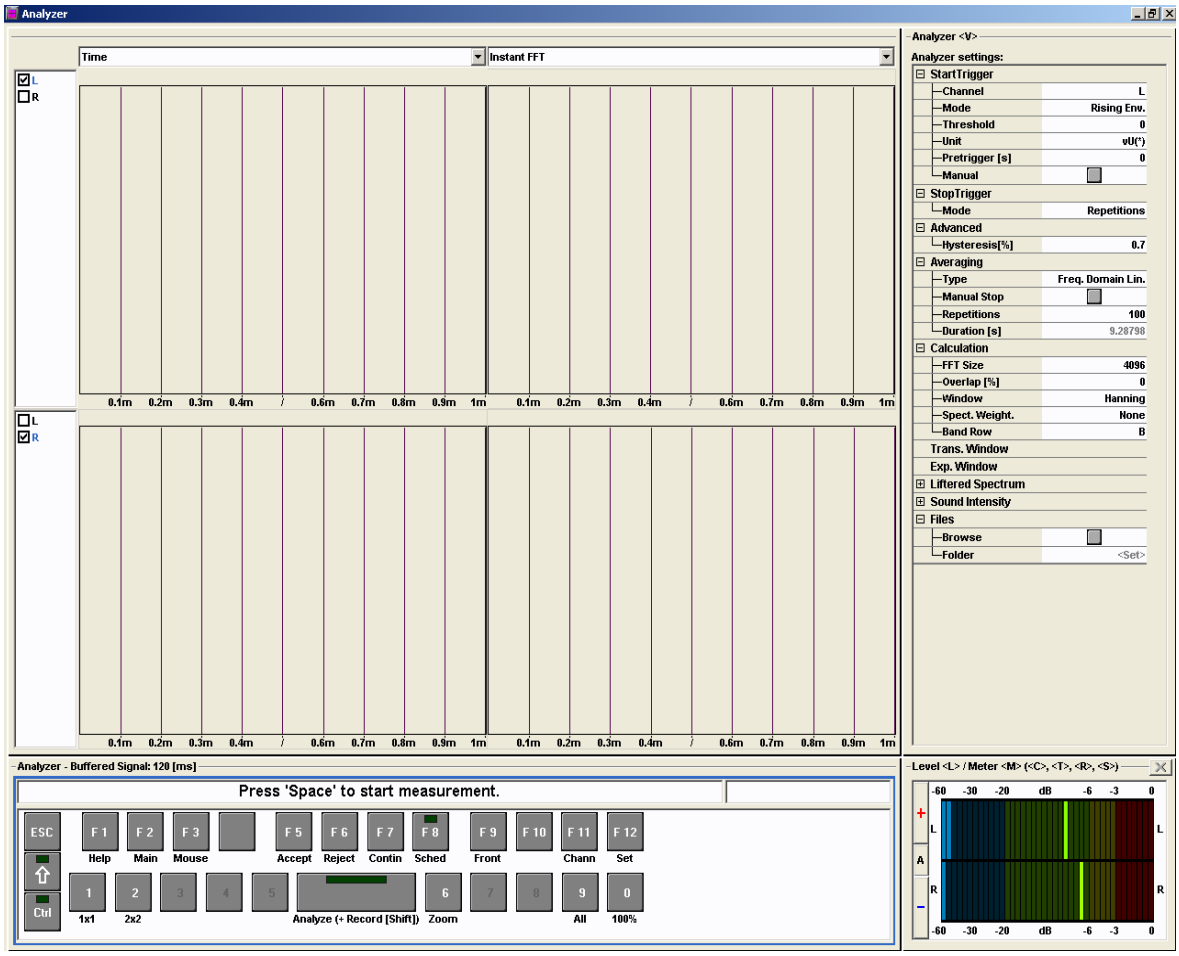
Starting the Online Analyzer



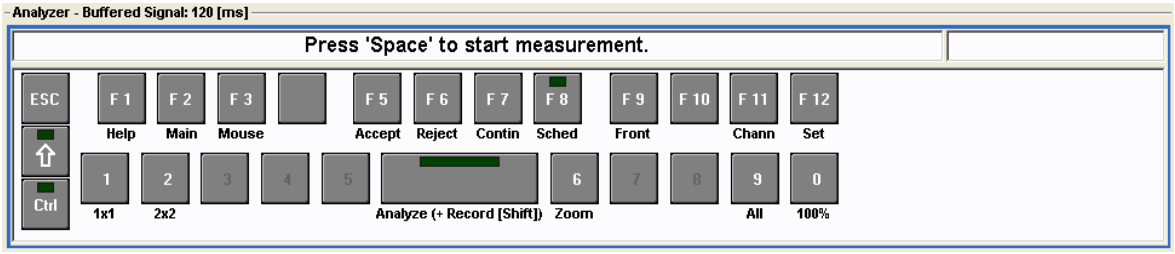
The Online Analyzer can be started by selecting "Online Analyzer" in the Edit menu or via the Online Analyzer icon in the tool bar. A project must be opened in ArtemiS to make the menu appear or to have the Online Analyzer icon activated. The analysis results saved with the Online Analyzer are automatically loaded into the active project.



After starting the Online Analyzer, you can select the frontend to be used for recording from a list of available frontends. In order to preview the functions of the program, you may select, for example, a sound card (Wave).

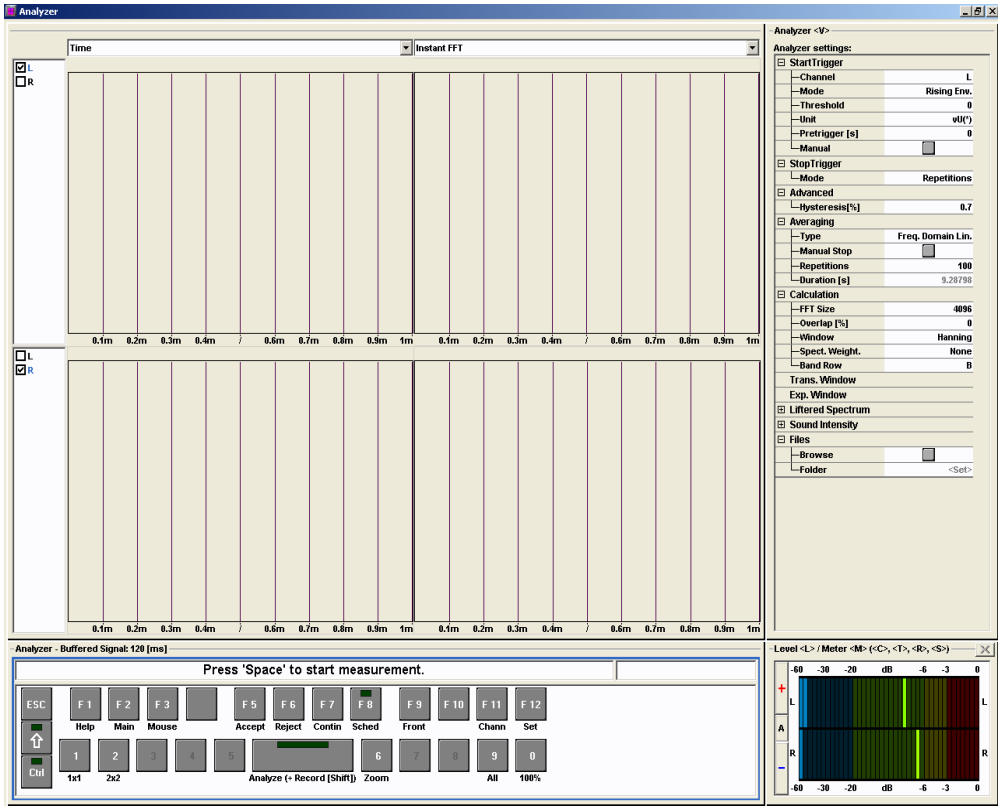


The user interface of the Online Analyzer is subdivided into the following four areas:
Upper left: Diagram area,
Lower left: Keyboard area,
Upper right: Settings area, e.g. for triggering,
Lower right: Display area for signal level or RPM information.



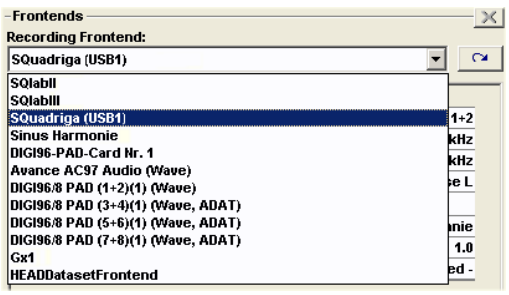
The keyboard area displays a subset of the actual hardware keyboard of the computer and allows the operation of the Online Analyzer with the mouse, the keyboard, or via key combinations. The colored frame around the keyboard area indicates that the input focus is on the keyboard. If this is not the case, the focus can be set on the key board at any time, if necessary by pressing the [Esc] key several times.
By pressing the [Space] key, you can start the analysis of the input signals. The analysis results are displayed in real time in the diagram area.

Operating Instructions

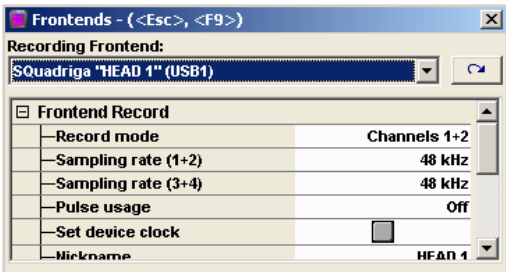


As previously stated, the recorder software can be operated via the keyboard in order to facilitate the measurement. The colored frame indicates the area of focus that corresponds to the keyboard commands. Using the [Tab] key, the focus can be shifted to the next area. Furthermore, shortcuts exist to switch directly to a particular area. These shortcuts are given in pointed brackets in the header of the corresponding area. By means of the [Esc] key the focus can be set directly to the keyboard area. Also, it is possible to shift the focus temporarily to the keyboard area by keeping the [Alt] key pressed. When releasing the [Alt] key, the focus returns. Some keys have a double function. The function level can be changed by pressing the [Shift] key and the labelling of the keys changes correspondingly. When activating the [Shift] key with the mouse or via the touch screen, the display switches until the [Shift] key is deactivated again. The integrated LED displays the status.

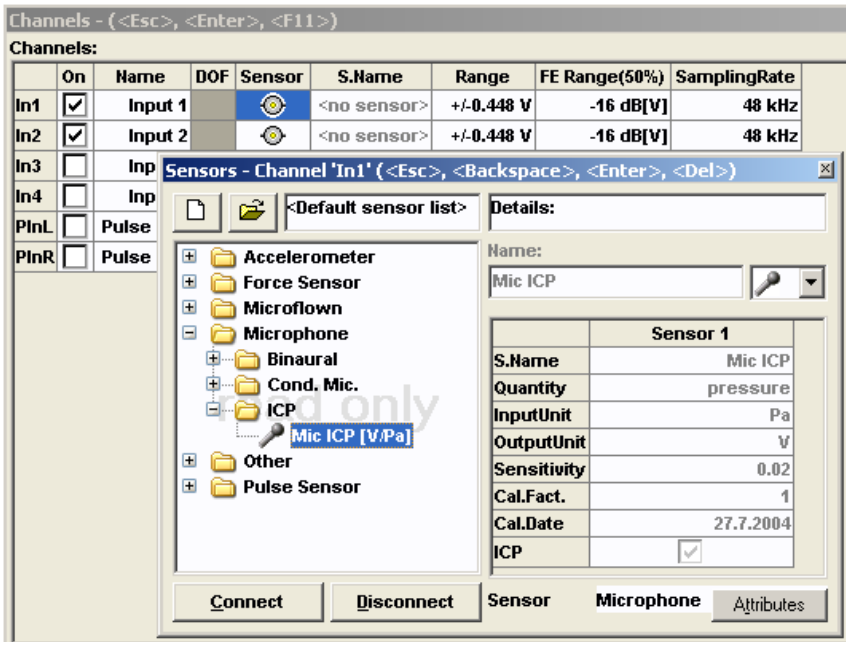
Adding a New Frontend



To select a new frontend press the [F2] key to enter the main menu. The [F9] key opens a list of available frontends. In this example, SQuadriga has been selected.

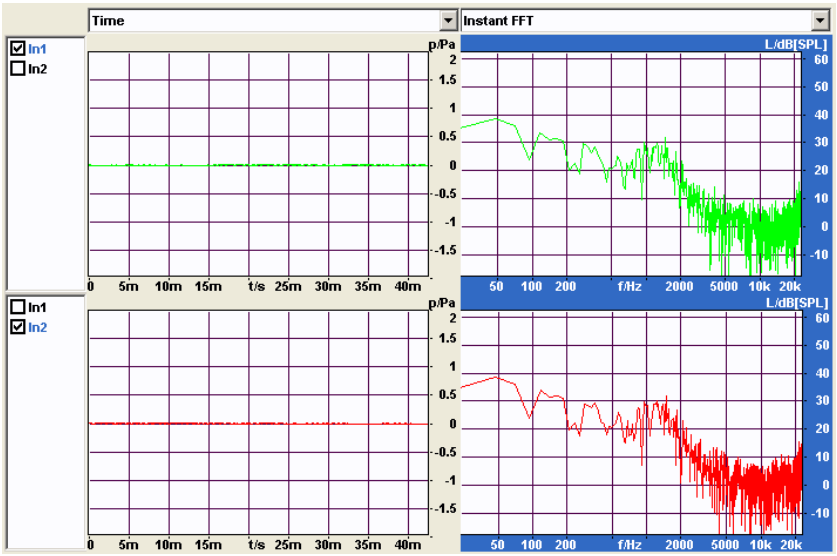


After selecting a frontend, some settings can be determined. In our example, SQuadriga has been configured for a four-channel measurement.
Press the [Esc] key to quit the selection and configuration mode. By pressing the digit key [3] you return to the Online Analyzer interface.

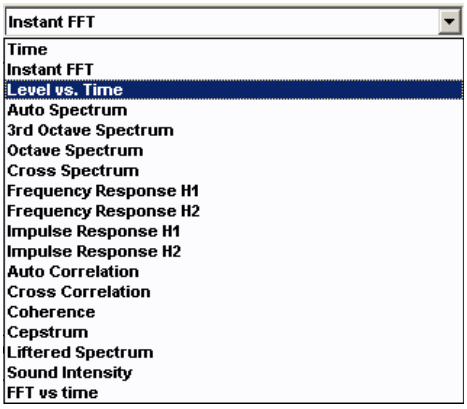


Pressing the function key [F11] opens the channel list. After double clicking the BNC socket a sensor list opens where the required sensors can be selected. To create a new sensor list or to import or edit an old sensor list, please use the HEAD Sensor Explorer.
The channel configuration can be saved. This is especially recommended if a large number of channels are used or the channel configuration is to be re-used frequently in the future.

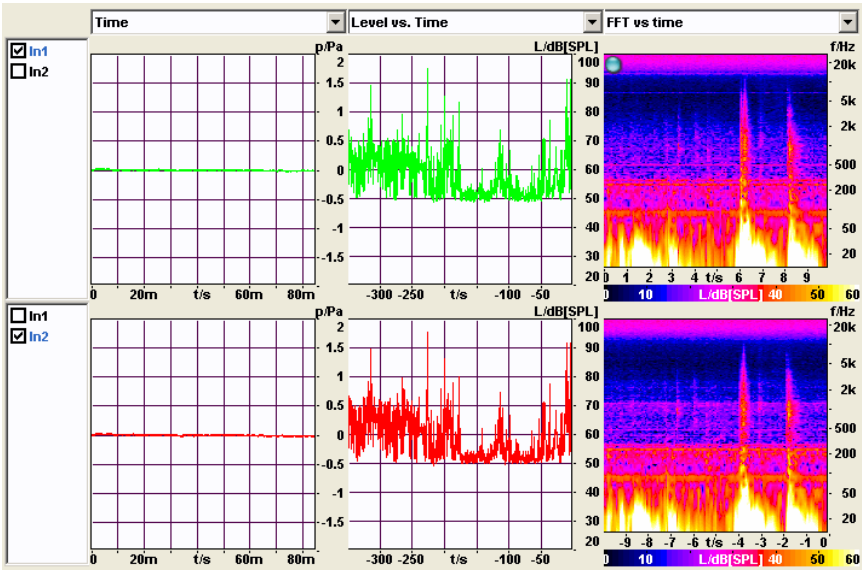
Settings in the Diagram Area



As soon as the channels are configured, you can start recording by pressing the [Space] key. In the diagram area, the original signal and/or one or several real-time analysis curves are displayed for monitoring. By pressing the [Tab] key, you can toggle the computer's focus from the keyboard area to the diagram area. Use the arrow keys to mark diagram rows or columns, respectively. When the focus is on a column, as shown, you can switch between the selection box of the potential analysis and the diagrams by pressing the [Enter] key. When a row is marked you can toggle with the same key between channel selection and diagrams.

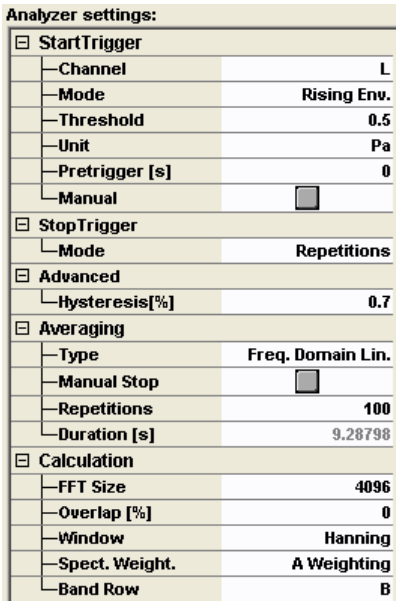


Along with the time signal, the HEAD Online Analyzer provides 17 FFT-based analysis functions.



Once the focus is returned to the keyboard area ([Esc] key), the keys [1] and [2] and the arrow keys can be used to change the display in the diagram area. For example, it is possible to display more than two channels and more than one analysis next to the original signal. Press the [→] and [←] keys to increase or decrease the number of analysis windows. Press the [↑] and [↓] keys to change the number of displayed channels.

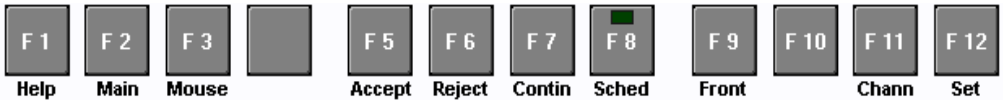
Settings Area



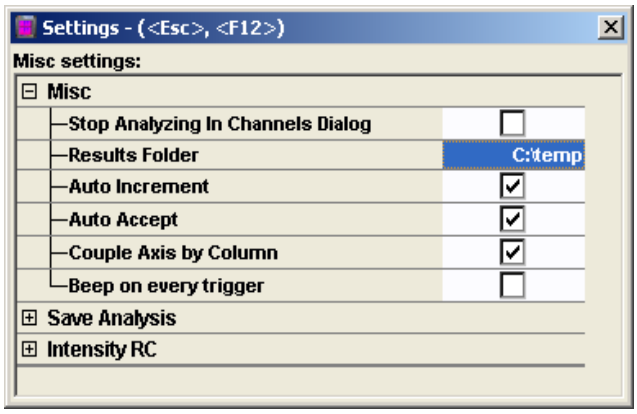
In the upper right area of the user interface, you can change several settings, for example the trigger settings. In the field “start trigger” the trigger channel, the trigger threshold and the pre-trigger can be selected. In addition, the trigger mode can be set, e.g. to “Rising Envelope”. With “Manual” a measurement can be started through manual triggering.
The trigger mode can also be selected for the stop trigger. If “repetitions” is selected a recording is done with the number of repetitions that inserted in the field “Repetitions”. From the number of repetitions and the selected block length (“FFT Size”) follows the length of recording given in the field “Duration [s]”.
In the section “Averaging” the settings for averaging can be specified. An averaging of analysis results is useful, for example, during an impact measurement for structural analysis. Different averaging calculations in the time as well as in the frequency range can be chosen.

In the section titled "Calculation", the analysis parameters for the FFT-based real-time analysis functions are specified. All these settings can be changed using the keyboard if the input focus is switched to the settings area (shortcuts: [V]-key).

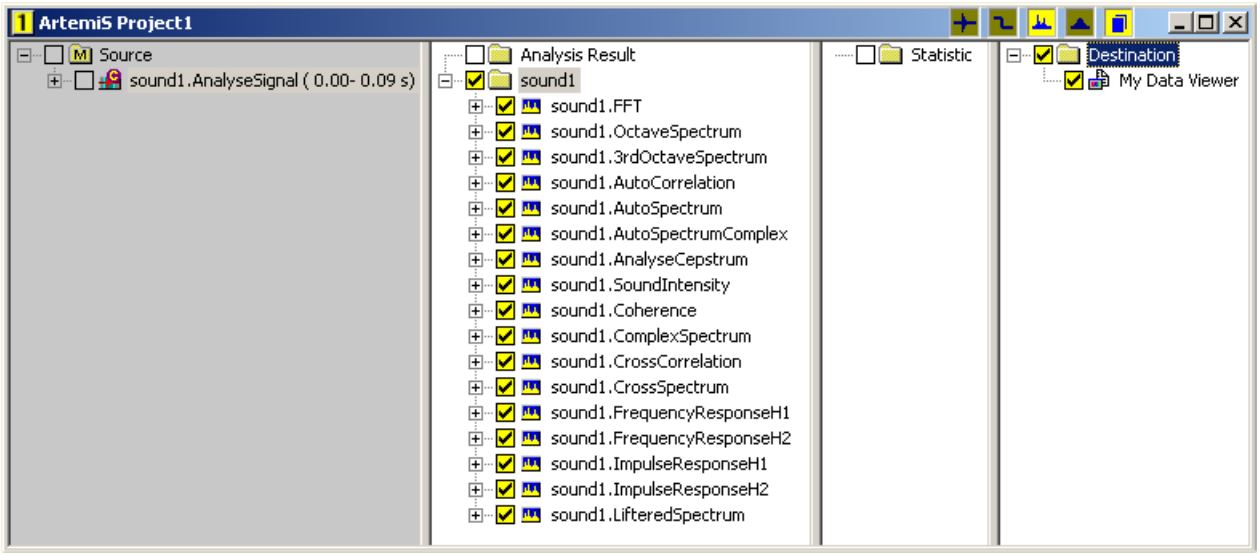
Function Keys



Closely related to the averaging settings are the functions assigned to the function keys [F5], [F6] and [F7] ("Accept", "Reject", "Continue"). These functions influence the averaging process, for example by discarding measurements that contain unwanted noise.
The [F1] key opens the Help function and the [F2] key the main menu, in which the frontend can be selected, for example. Pressing the [F3] key activates the remote control function of the recorder via the computer mouse. With the [F9] key the frontend dialog for configuration of connected frontends and with the [F11] key the channel list are displayed.

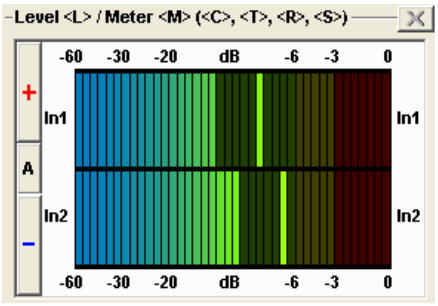


To facilitate the saving of recordings, a settings menu can be opened with the [F12] key, where you can enable, for example, the "Auto Increment" function and the "Auto Accept" function. When these functions are activated, ArtemiS automatically saves all results and increases a number in the file name for each saved file. In the field "Results Folder" you select the file in which the analysis results are to be saved. Under the menu setting "Save Analysis" those analysis results are selected which are to be saved by the program. The setting "Intensity RC" offers the possibility to activate and configure a remote control for measurements with a sound intensity probe.

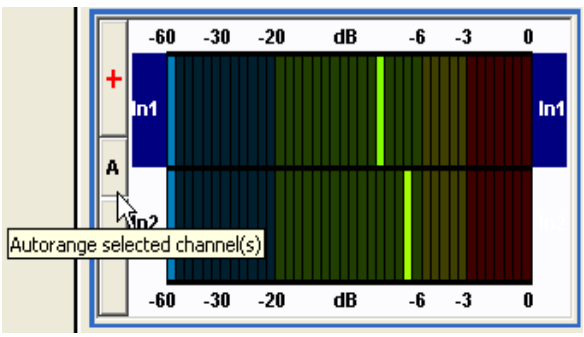


As soon as the data have been saved, they are automatically made available in the active project window in ArtemiS. In order to see the analysis data in the project, the Analysis Pool must be switched to the "Analysis Pool for Files" mode.

Level/RPM Display

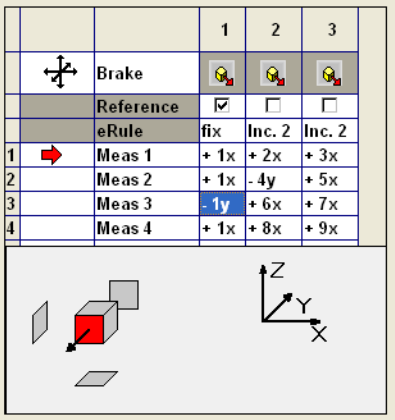


In the lower right area of the user interface, a control window is displayed, where the signal level of the individual channels or the revolution speed (RPM) can be monitored. Use the [M] and [L] keys to switch between the two displays.
If you press the [L] key twice, the level bar display for the channels is enlarged. Furthermore, you can switch between two different display modes with the [T] key and switch between channels during a multi-channel measurement with the [C] key.



In addition, in the modulation display the measurement range for the selected channels can be manually increased, reduced or set automatically ("Autorange").

Additional Functions



With the functions described above, you are already prepared for a wide range of tasks. Additional possibilities of the Online Analyzer are described in the online help, such as the "Measurement Scheduler" that assists you with extensive structural or system analysis projects; for example by graphically displaying the location and direction of the sensors.
The online help not only describes the additional functions, it also provides you with a comprehensive list of keyboard shortcuts. To open the online help, press the [F1] key.