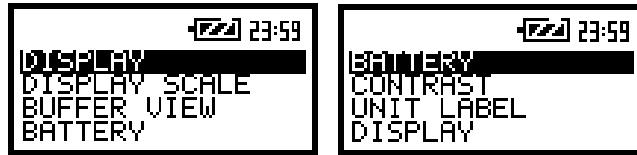


5. AUXILIARY FUNCTIONS

5.1. DATA AVAILABLE ON THE SCREEN – DISPLAY LIST

By means of the instrument's *DISPLAY* list some additional data can be obtained. The *DISPLAY* list is available after pressing the <DISPLAY> push-button. This list consists of the following items: **DISPLAY**, **DISPLAY SCALE** and **BUFFER VIEW** sub-lists and **BATTERY**, **CONTRAST** and **UNIT LABEL** positions.



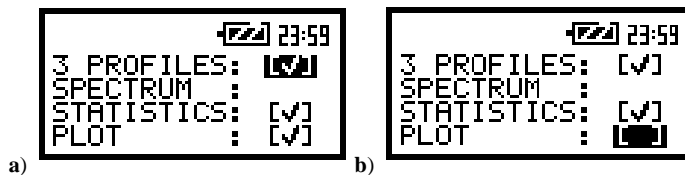
The view of the screens with the *DISPLAY* list

Selection of the ways of measurement results presentation – DISPLAY sub-list

The **DISPLAY** sub-list enables one the selection of the currently available ways of displaying the results of measurement. The selection is made by placing or replacing the special character in the displayed inversely position of the **DISPLAY** sub-list by means of the <◀>, <▶> push-buttons and by confirming by means of the <ENTER> push-buttons. The way of the displaying the results is related with the selection of the instrument's function (**SLM**, **1/1 OCTAVE** or **1/3 OCTAVE** analyser). Only One Profile cannot be switched off independently from the current mode of the instrument.

For the **Sound Level Meter** the following possibilities of the measurement results presentation are available:

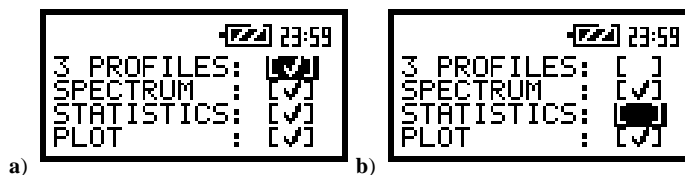
- One Profile,
- 3 PROFILES,
- STATISTICS,
- PLOT.



The view of **DISPLAY** sub-list for the SLM with all possibilities switched on (a) and **PLOT** switched off (b)

For **1/1 OCTAVE** & **1/3 OCTAVE** analysis the following ways of the measurement results presentation are available:

- One Profile,
- 3 PROFILES,
- SPECTRUM,
- STATISTICS,
- PLOT.



The view of the **DISPLAY** sub-list with all possibilities of results presentation for **1/1 OCTAVE** or **1/3 OCTAVE** analysis switched on (a) and **3 PROFILES** and **STATISTICS** switched off (b)

The **PLOT** mode of results presentation is available if, and only if, data from at least one profile are logged in the buffer's file. If the **PLOT** position is switched on ([√]) but there was nothing stored in the buffer's file (in the selected profile there was **BUFFER:None**) the **NO RESULTS** text is displayed (see Figure below).



The view of the screen in the **PLOT** mode when there is nothing in the buffer to be displayed

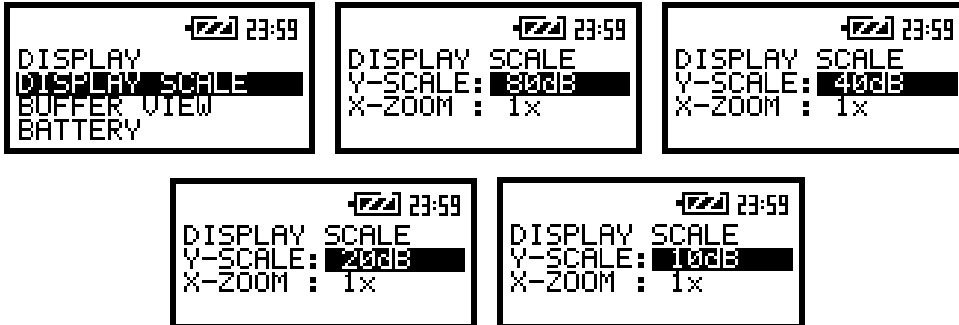
Each position of **DISPLAY** sub-list can be switched on or off independently. The sub-list is closed and the instrument returns to the **DISPLAY** list after pressing the **<ESC>** or **<ENTER>** push-button (the latter only in the case when the bottom line of the screen is displayed inversely).

Selection of the scale in graphical results presentations – DISPLAY SCALE sub-list

The **DISPLAY SCALE** sub-list enables the user to change the scale in the available modes of graphical presentation of the measurement results (time history in the **PLOT** and so-called spectra in the **SPECTRUM**). It is possible to change the scale of the horizontal and vertical axis. In order to enter this list one has to press the **<ENTER>** push-button on the inversely displayed **DISPLAY SCALE** text of the **DISPLAY** list. The **DISPLAY SCALE** sub-list is closed and the instrument returns to the **DISPLAY** list after pressing the **<ESC>** or **<ENTER>** push-button (the latter only in the case when the bottom line of the screen is displayed inversely).

Scaling of the vertical axis of the graphical presentation – Y-SCALE position

In the case of the vertical axis the user can obtain the double, four times and eight times expansion (as the default the vertical axis corresponds to 80 dB, after expansion it corresponds to 40 dB, 20 dB and 10 dB – respectively) using the **<↑>**, **<↓>** push-buttons.



The view of the screens with the possible values of the vertical axis in **PLOT** and **SPECTRUM** presentations

Scaling of the horizontal axis of the graphical presentation – X-SCALE position

It is also possible to obtain two times, four times and eight times expansion in the case of the horizontal axis (the default value of the multiplier of this axis is equal to 1) by means of the **<↑>**, **<↓>** push-buttons.



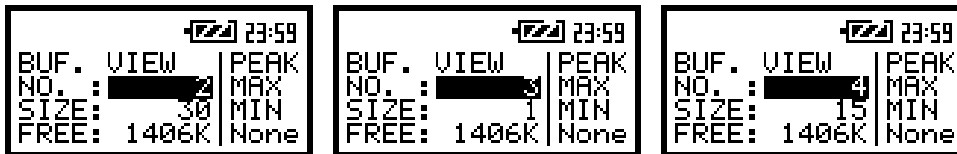
The view of the screens with the possible values of the horizontal axis in PLOT and SPECTRUM presentations

Selection of the buffer's file to the screen presentation – BUFFER VIEW sub-list

The **BUFFER VIEW** sub-list enables the user to examine the contents of the buffer. The following parameters of the buffer are presented on the instrument's display:

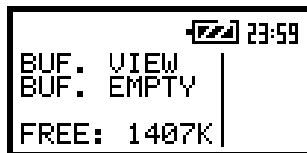
- The number of the current file in the buffer (**NO:**).
- The size of the current file in the buffer (**SIZE:**).
- The size of the empty, still available memory (**FREE:**).

The type of the measurement results stored in the buffer in profiles 1, 2, 3 (chosen in the **PROFILE x** sub-list of the **PROFILES SETUP** sub-list) as well as the results selected for the registration in the case of **1/1 OCTAVE** or **1/3 OCTAVE** analysis (chosen in the **SPECTRUM** sub-list of the **PROFILES SETUP** sub-list) are given on the right side of the screen. The change of the number of the file in the buffer is done after pressing the <◀>, <▶> push-buttons.



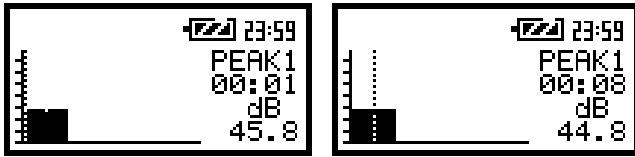
The view of the screens with the **BUFFER VIEW** sub-list opened: the selection of the file to be seen

The screen of the instrument after entering the **BUFFER VIEW** sub-list looks as on the figure below in the case when the buffer is empty (there was no measurement or the measurements were performed but with the settings for all profiles and the spectrum **BUFFER: None** on the **PROFILES SETUP** sub-list).



The view of the screen with **BUFFER VIEW** sub-list in the case when there are no files in the buffer

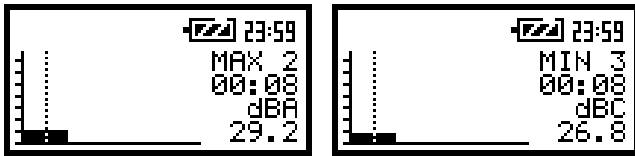
The contents of the selected file from the buffer is displayed after pressing the <ENTER> push-button. The cursor position changes after pressing the <◀>, <▶> push-buttons. The type of the registered result, the number of the profile the result is coming from, the related time from the beginning of the registration and the value are presented on the right side of the screen. The scrolling of the screen is made when the cursor is at one of two limits of the graphical presentation space and the <◀>, <▶> push-buttons are still pressed and in the file there are still the results. The position of the horizontal axis in relation to the vertical one can be changed after pressing the <◀>, <▶> push-buttons together with the <SHIFT> one.



The view of the screens with the selected file from the buffer; the change of the cursor position

The selected file in the buffer can contain the measurement results from up to 3 profiles and the spectra. The change of the profile is possible after pressing the **<ESC>** push-button (the **<ENTER>** pressed together with the **<SHIFT>**). The spectra are registered in the file's buffer with the same step as selected in the **BUF. STEP** position of the **MEASURE SETUP** sub-list. In order to display the registered spectra the user has to press the **<FILE>** push-button for the spectra stored later and to press the **<INPUT>** one for the spectra saved earlier.

The window is closed and the instrument returns to the **BUFFER VIEW** sub-list after pressing the **<ENTER>** push-button. The exit from the **DISPLAY** list is made after pressing any function push-button or after start of the measurements.



The view of the screens with the selected file from the buffer; the change of the profile after pressing **<ESC>**

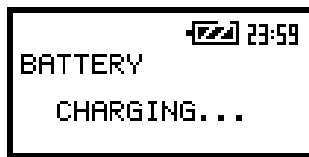
Checking the state of the internal battery – BATTERY position

The **BATTERY** position enables the user to check the internal battery condition. The current battery voltage is displayed.



The view of the screens with the **BATTERY** position when the external supplier is not connected

If the instrument is switched on when the external supplier is connected the special message is displayed in the **BATTERY** position.



The view of the **BATTERY** position when the external supplier is connected to the instrument

The position is closed and the instrument returns to the **DISPLAY** list after pressing the **<ESC>** or **<ENTER>** push-button.

Setting the contrast of the screen – CONTRAST position

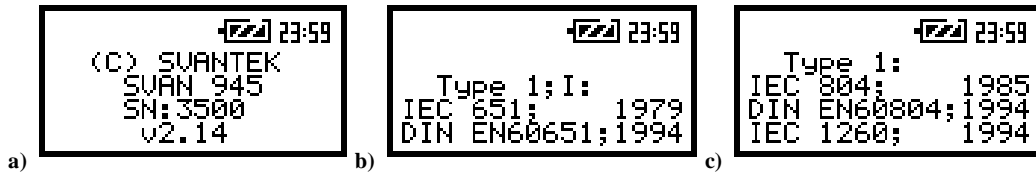
The **CONTRAST** position enables the user to set the proper contrast of the screen (by means of the <◀>, <▶> push-buttons). The position is closed and the instrument returns to the *DISPLAY* list after pressing the <ESC> or <ENTER> push-button.



The view of the screens with the CONTRAST position

Checking specification of the instrument – UNIT LABEL position

The **UNIT LABEL** position displays the type of the instrument, its serial number and the current software version installed in it. After pressing the <◀>, <▶> push-buttons the displayed text is scrolled on the screen and the user can check the number of standards fulfilled by the instrument. The position is closed and the instrument returns to the *DISPLAY* list after pressing the <ESC> or <ENTER> push-button.



The view of the screens with the UNIT LABEL position opened (a) and after scrolling with the <◀>, <▶> push-buttons (b), (c)

5.2. SETUP MENU

Setting of the other parameters important for the sound measurements can be done by means of the *SETUP* list, which can be entered after pressing the **<SETUP>** push-button (the **<INPUT>** and the **<SHIFT>** push-button pressed in conjunction or in a sequence – cf. the description of the **SHIFT MODE** sub-list).

In the *SETUP* list the following items are available:

- **TIMER** position which enables the user to set the Timer function.
- **RTC** position which enables the user to set the Real Time Clock.
- **RS232** sub-list which enables the user to set the transmission speed and the timeout in the RS232 interface.
- **MIC. POLAR.** position which enables the user to set the voltage polarisation for the attached microphone.
- **SHIFT MODE** sub-list which enables the user to set the operating mode of the **<SHIFT>** and the **<PAUSE>** push-buttons.
- **CLEAR SETUP** position which enables the user to return to the producer's set up.
- **LEQ INTEGRATION** position which enables the user to select the way of integration for the **LEQ** measurement.



The view of the screens with the *SETUP* list

Programming of the instrument's internal timer – TIMER position

The **TIMER** position enables one to programme the internal timer. The instrument can be switched on by itself in the programmed time and can perform the measurements using the set up which was used before its switching off. The operation of the **TIMER** setting is performed in the same way as it was described in the case of the **FILE NAME** window. The selection of the setting parameter is performed using the **<◀>**, **<▶>** push-buttons and the change of its value – using the **<◀>**, **<▶>** push-buttons pressed together with the **<SHIFT>**. The parameter, which value has to be changed, is switched on and off.



The view of the **TIMER** position

The instrument, in which the **TIMER** is programmed, switches on one minute before the set time, displaying the text:

WARM UP TIME=60s

The counter is decreased after each second. After the warm up time the instrument starts the measurements in the mode and with the parameters which were set in the moment of its switching off.

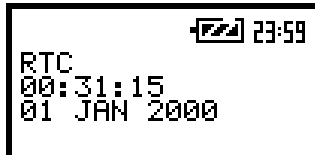


Notice: The instrument's **TIMER** function can be used only once (at the programmed day and time). The **TIMER** can be programmed up to one month ahead.

The position is closed and the instrument returns to the **SETUP** list after pressing the **<ENTER>** or **<ESC>** push-button.

Programming of the instrument's internal Real Time Clock – RTC position

The **RTC** position enables one to programme the internal **Real Time Clock**. This clock is displayed in the top right corner of the instrument's display. The operation is performed in the same way as it was described in the case of the **FILE NAME** window.



The view of the RTC position

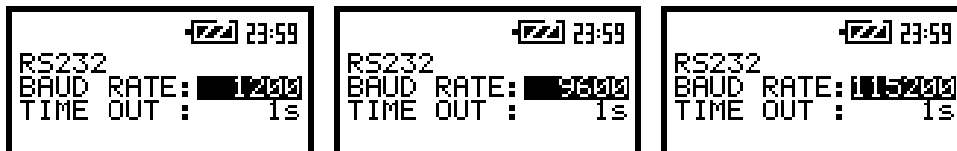
The position is closed and the instrument returns to the **SETUP** list after pressing the **<ENTER>** or **<ESC>** push-button.

Setting the parameters of the serial interface – RS232 sub-list

The **RS232** sub-list enables the user to programme the RS 232 interface transmission speed (**BAUD RATE** position) and to set the time limit before which the interface operation should be performed (**TIME OUT** position).

Setting the transmission speed of the serial interface – BAUD RATE position

The transmission speed can be selected from the following items: **1200** (bits / second), **2400** (bits / s), **4800** (bits / s), **9600** (bits / s), **19200** (bits / s), **38000** (bits / s), **57600** (bits / s) or **115200** (bits / s). The selection is made by means of the **<◀>**, **<▶>** push-buttons and the confirmation - with the **<ENTER>** one. The other RS 232 transmission parameters are fixed to: **8 bits for data**, **No parity** & **1 Stop bit**. After setting the transmission speed, which occurs by pressing the **<ENTER>** push-button, the next position can be programmed.

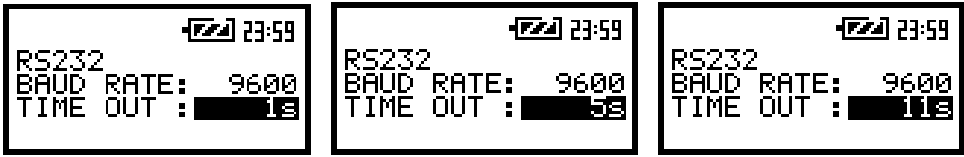


The view of the RS232 sub-list – the setting of the BAUD RATE

Setting time limit for the performance of serial interface operation – TIME OUT position

The value shown in the inversely displayed line is increased or decreased by one with each pressing the **<◀>**, **<▶>** push-buttons. The step is increased to ten after pressing the **<◀>**, **<▶>** push-

buttons together with the <SHIFT> one. The default value of this parameter is equal to 1 but it can be too short time for the printers which are not too fast. In such case the **TIME OUT** parameter has to be increased.



The view of the RS232 sub-list – the setting of the TIME OUT

The sub-list is closed and the instrument returns to the *SETUP* list after pressing the <ENTER> or <ESC> push-button.

Selection of the voltage polarisation of the microphone – MIC. POLAR. position

The **MIC. POLAR.** position enables the user to set the proper level of the voltage polarisation of the instrument's microphone (by means of the <◀>, <▶> push-buttons). Two levels (**200 V** and **0 V**) are selectable.



The view of the screens with the MIC. POLAR. position

The position is closed and the instrument returns to the *SETUP* list after pressing the <ENTER> or <ESC> push-button.

Selection of few push-button's mode – SHIFT MODE sub-list

The **SHIFT MODE** sub-list enables the user to programme the operation mode of the <SHIFT> and <PAUSE> push-buttons. The selection of a parameter in both positions is done by means of the <◀>, <▶> push-buttons and confirmed by the <ENTER> one.

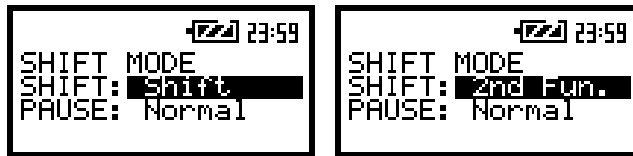


The view of the screen in the *SETUP* list with the SHIFT MODE sub-list selected

Selection of the working mode of <SHIFT> push-button – SHIFT position

In the **SHIFT** position the user can choose between **Shift** and **2nd Fun.**. When the **Shift** text is selected the push-button with this name operates as in the keyboard of a computer – in order to achieve the desired result the second push-button has to be pushed in conjunction with the <SHIFT> one.

When the **2nd Fun.** text is selected the **<SHIFT>** push-button operates in the sequence with the other one. This mode is additionally signalled by the flashing **2n dF** text placed instead of the **Clock** icon. This flashing starts after pressing the **<SHIFT>** and lasts till pressing any other function push-button.

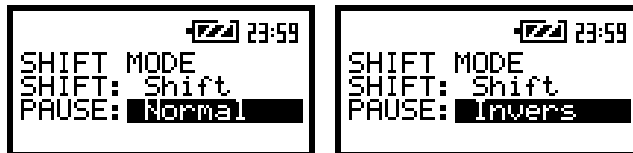


The view of the screens in the **SHIFT MODE** sub-list; the available settings in the **SHIFT** position

Selection of the working mode of <PAUSE> push-button – PAUSE position

In the **PAUSE** position the user can choose between **Normal** and **Inverse**. When the **Normal** text is selected the **<PAUSE>** push-button operates as it is described in Chapter 2 – the function **PAUSE** is available after pressing the push-button and the function **ST/SP** is available after pressing (in conjunction or in a sequence) two push-buttons: **<PAUSE>** and **<SHIFT>**.

When the **Inverse** text is selected the **<PAUSE>** push-button operates in the opposite mode: the function **ST/SP** is available after pressing the push-button and the function **PAUSE** is available after pressing (in conjunction or in a sequence) two push-buttons: **<PAUSE>** and **<SHIFT>**.



The view of the screens in the **SHIFT MODE** sub-list; the available settings in the **PAUSE** position

The position is closed and the instrument returns to the **SETUP** list after pressing the **<ENTER>** or **<ESC>** push-button.

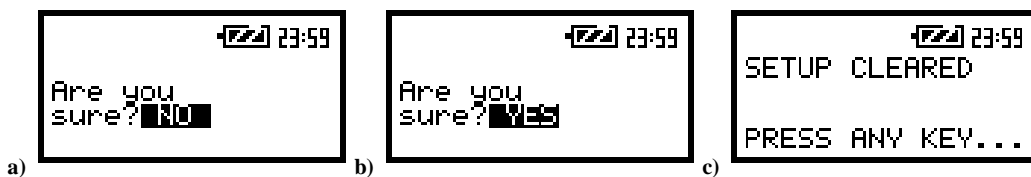
Return to the factory made settings – CLEAR SETUP position

The **CLEAR SETUP** position enables the user to return to the producer's set up of the instrument. After entering this position (by means of the **<◀>**, **<▶>** for the selection of the position and the **<ENTER>** push-button for the entering) the request for the confirmation is displayed. The position is closed without any action and the instrument returns to the **SETUP** list after pressing the **<ESC>** push-button.

The proper answer for the request is selected by means of the **<◀>**, **<▶>** push-buttons. The instrument returns to the default set up after pressing the **<ENTER>** push-button in the case when the answer **YES** was chosen. During the process of the resetting the message is displayed:

Wait . .

The following message is displayed after the return to the default settings and the instrument waits for the user's reaction.



The screens with the request for the confirmation for the **CLEAR SETUP** position execution (a), (b) and after the execution of the function (c)



Notice: The factory settings contain 200 V as the voltage polarisation for the instrument's microphone. It can be dangerous for the pre-polarised microphones (if such microphone is used instead of the one supplied with the instrument).

The position is closed and the instrument returns to the *SETUP* list after pressing any push-button with an exception of the <SHIFT> one.

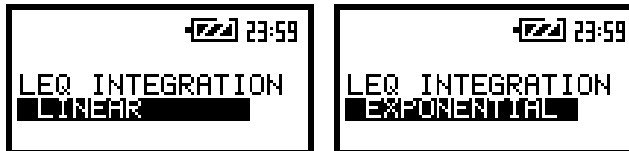
Selection of detector's type in the LEQ calculations – LEQ INTEGRATION position

The **LEQ INTEGRATION** position enables the user to select the detector type for the calculations of the **LEQ** function.



The view of the screen in the *SETUP* list with the **LEQ INTEGRATION** position selected

The required parameter can be set by means of the <◀>, <▶> push-buttons. The formulae used for the **LEQ** calculation are given in Appendix D.



The view of the screens and with the available options of the **LEQ INTEGRATION** position

The return to the *SETUP* list is performed after pressing in any time the <ESC> or the <ENTER> push-buttons.

5.3. SAVING THE MEASUREMENT RESULTS

The registration of the measurement results is an essential task for the efficient use of the instrument. All available measurement results can be stored in the FLASH type capable memory of the instrument.

There are two main ways for storing the measurement data in the instrument:

1. Saving files in the FLASH DISC using the *FILE* list.
2. Logging data in the files of the buffer.



Notice: The instrument's buffer memory is independent from the FLASH DISC memory.

Saving files

In the case of SVAN 945 there are four different types of files containing data:

- from **S**ound Level **M**eter mode;
- from **1/1 OCTAVE** analysis;
- from **1/3 OCTAVE** analysis;
- stored in the instrument's buffer.



Notice: The files in the buffer are created automatically (the usage of the **SAVE** position is not required).

Each file consists of some elements which are the same for all kind of files:

- a file header;
- the unit and software specification;
- the user's text stored together with the measurement data;
- the parameters and global settings;
- the special settings for profiles;
- the marker of the end of the file.

The other elements of the file structure depend on the type of the file (**SLM**, **1/1 OCTAVE** or **1/3 OCTAVE** analysis, buffer) and on the setting of **SAVE STAT.** position from **SAVE OPTIONS** sub-list from the *FILE* list. These elements are as follows:

- the main results;
- the results coming from **1/1 OCTAVE** analysis;
- the results coming from **1/3 OCTAVE** analysis;
- the statistics header;
- the results of statistical analysis;
- the header of the buffer's file;
- the data stored during the measurements in the files of the buffer.



Notice: The detailed description of all types of file structures is given in the Appendix B.

Selection of the file's operation – FILE list

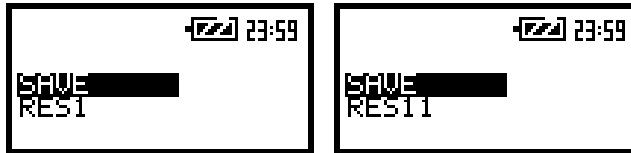
Storing of the sound measurement results as files in the instrument's FLASH DISC can be done by means of the *FILE* list. This list is opened after pressing the <FILE> push-button. The *FILE* list contains the following items: **SAVE** position, **SAVE OPTIONS** sub-list and the positions: **LOAD**, **DELETE**, **DELETE ALL**, **CLEAR BUFFER**, **CATALOGUE**, and **FREE SPACE**.



The view of the screens with the *FILE* list of the instrument

Saving files in the instrument's memory – SAVE and SAVE NEXT positions

The **SAVE** position is used for storing data in the internal non-volatile (FLASH DISC) memory as a file (see Appendix B for the file formats). The entering of this position is possible by pressing the <ENTER> push-button when the **SAVE** text is displayed inversely in the *FILE* list. The additional function for results saving (the **SAVE NEXT** – save a file with the name increased by one) is available after pressing the <◀>, <▶> push-buttons.



The view of the screens with the **SAVE** position opened

The name of the file, in which the measurements or the analysis results are to be saved, is displayed under the text **SAVE** or **SAVE NEXT**. The **RES1** is the default name for a file in the case of the first entering to this position (after power on) and the last saved file's name – in the case of the next entering. It is possible to edit this name in two ways: full and simplified.

The window of the full edition of the file's name (the **FILE NAME**) is opened after pressing the <ENTER> push-button in the case when the **SAVE** function was selected for saving the results of the measurements.

The user can skip the full edition of the file's name pressing once more the <ENTER> push-button. It will result in the passing to the phase of the file's saving described just after the **FILE NAME** window.

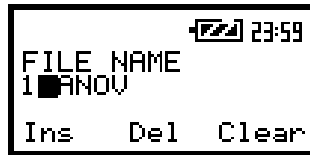
The **FILE NAME** window is presented on the Figure below. The displayed inversely character is currently edited. The descriptions: **Ins**, **Del** and **Clear** are attached to the <INPUT>, <DISPLAY> and <FILE> push-buttons - respectively.



The view of the screen during the process of setting the character in the edited name

One can select the proper position of the character in the edited text using the <◀>, <▶> push-buttons. The character can be changed using the <◀>, <▶> push-buttons pressed together with the <SHIFT>. The subsequent big and small letters, digits and other ASCII characters appear on the screen in the inversely displayed position after each pressing such combination of the push-buttons.

The empty space is created for the introduction of a new character in the edited name (the **Ins** operation is executed) when the **<INPUT>** push-button is pressed.



The view of the screen after pressing the **<INPUT>** (Ins) push-button

The character, which is displayed inversely, is deleted from the edited name (the **Del** operation is executed) when the **<DISPLAY>** push-button is pressed.



The view of the screen after pressing the **<DISPLAY>** (Del) push-button

All characters are deleted in the edited name (the **Clear** operation is executed) when the **<FILE>** push-button is pressed.



The view of the screen after pressing the **<FILE>** (Clear) push-button

The edited name is accepted and the file is saved after pressing the **<ENTER>** push-button (cf. the description of the **SAVE NEXT** function).

The simplified edition consists in the addition at the end of the file name the natural number. The increase by one of the number is achieved by each pressing the **<▶>** push-button together with the **<SHIFT>** one and the decrease – by pressing the **<◀>** push-button together with the **<SHIFT>**. The number can be changed from 1 to N, when the only limitation of the N value is the length of the file name, which cannot be longer than 8 characters.

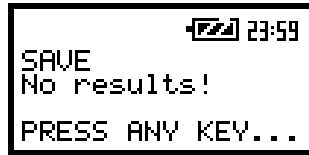


The view of the screens in the simplified edition of the file name

The instrument attempts to save a file after pressing the **<ENTER>** push-button. The saving is not possible in the case when the instrument is measuring the signal or the measurements were stopped after pressing the **<PAUSE>** push-button. The changing message is displayed on the screen in this case:


MEASUREMENT / measurement
IN PROGRESS / in progress

The **SAVE** position is displayed once more after about 3 seconds. The presented below message is displayed after pressing the **<ENTER>** push-button in the case when no measurements were performed and there are no results to be saved. The instrument then waits for the reaction of the user (any push-button should be pressed except the **<SHIFT>** one) and after pressing a push-button it returns to the **SAVE** position.



The view of the screen after the SAVE operation when there were no results for storing

The data are saved in the file with the name increased by one in relation to the name displayed after **SAVE NEXT** text after pressing the **<ENTER>** push-button (if the instrument is not measuring and there are the results to be stored).



Notice: In the **SAVE NEXT** function it is possible to save a file (pressing the **<ENTER>** push-button) skipping the full or simplified edition of the file's name.

The following message containing the name of the file and the operation performed is displayed during the file's saving:

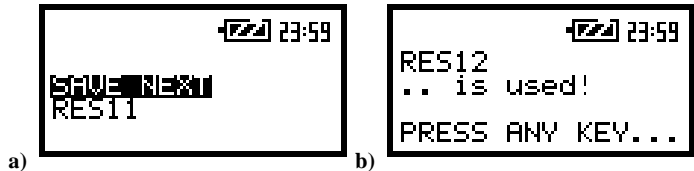
RES13
Saving. . .

Another message is displayed after successful saving of the file in the memory and then the instrument waits for the reaction of the user (any push-button should be pressed except the **<SHIFT>**) and after pressing a push-button it returns to the **FILE** list. The assumptive file's name is displayed after repeated enter to the **SAVE** position of the **FILE** list (after pressing the **<ENTER>** push-button).



The screens with the SAVE NEXT function (a); after saving the file with the increased name (b) and after repeated enter to the SAVE NEXT function (c)

It is not possible to store the data in the file, which already exists, when the **REPLACE** position is not active ([]). The presented below message is displayed after pressing the **<ENTER>** push-button in the case when during the name edition process the user selected the name which was used before. The instrument then waits for the reaction of the user (any push-button should be pressed except the **<SHIFT>** one) and after pressing a push-button it returns to the **FILE** list.



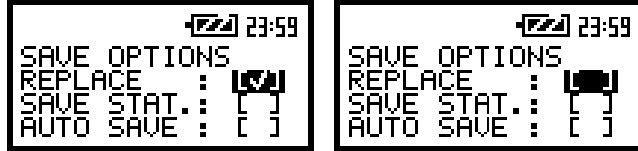
The screens after the file's name selection (a) and with the message if the REPLACE position is not active (b)

Controlling the data storing in the instrument's memory – SAVE OPTIONS sub-list

The **SAVE OPTIONS** sub-list is used for the selection of the options of data storing in the **FLASH DISC** memory of the instrument. The sub-list is opened after pressing the **<ENTER>** push-button when the **SAVE OPTIONS** text in the **FILE** list is displayed inversely. It is possible to replace the existing in the memory file by the new with the same name (the **REPLACE** position), to add to the results the statistics of the measurements (the **SAVE STAT.** position) and to save automatically the results of the measurements (the **AUTO SAVE** position).

Replacement of the existing files by the new ones – REPLACE position

The result of the attempt to save the file with the name which already exists in the memory depends on the setting of the **REPLACE** position. It is possible to erase the old file and to save the new one with the same name if the position is active ([√]). The message is displayed that such operation is not available in the case when this position is not active ([]) – cf. the description of the **SAVE** position. The activation or deactivation of the **REPLACE** position is done by pressing the <◀>, <▶> push-buttons. The next position from the **SAVE OPTIONS** sub-list becomes available after pressing the <ENTER> push-button.



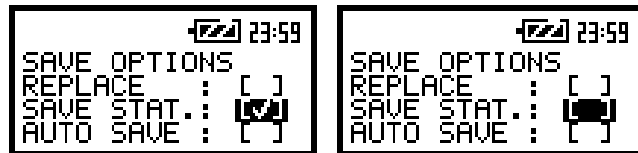
The screens during the execution of the SAVE OPTIONS – the selection of the REPLACE parameters

Controlling of the measurement statistics savings – SAVE STAT. position

The **SAVE STAT.** position is used to set self saving, together with the measurement results, the statistics of the measurements ([√]) or to switch off ([]) this possibility. Together with the measurements 100-class statistics is performed (the values named from **L01** to **L99**). The activation or deactivation of the **SAVE STAT.** position is done by pressing the <◀>, <▶> push-buttons. The next position from the **SAVE OPTIONS** sub-list becomes available after pressing the <ENTER> push-button.



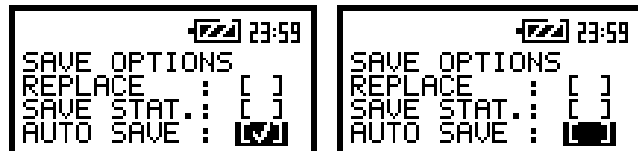
Notice: This position was created to save the memory of the instrument in the case when the knowledge of the statistics is not necessary. **Each registration of the statistics requires 600 bytes of the memory!**



The screens during the execution of the SAVE OPTIONS – the selection of the SAVE STAT. parameters

Controlling of the measurement results savings – AUTO SAVE position

Using the **AUTO SAVE** position one can set the self saving of the measurement results ([√]) or to switch off ([]) this possibility. The activation or deactivation of the **AUTO SAVE** position is done by pressing the <◀>, <▶> push-buttons. This position was also established in order not to waste too much memory of the instruments when the self saving is not necessary. The window for the edition of the base name for the self saved files is opened (the **FILE NAME**) after pressing the <ENTER> push-button in the case when the **AUTO SAVE** position is activated. The return to the **FILE** list is performed after pressing the <ENTER> push-button in the opposite case.



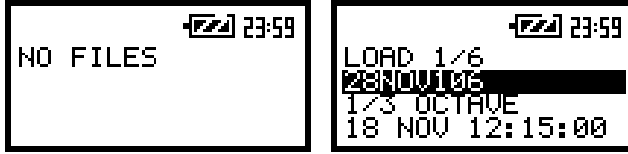
The screens during the execution of the SAVE OPTIONS – the selection of the AUTO SAVE parameters

Loading the files with the measurement results – LOAD position

The **LOAD** position is used for loading data file from the FLASH DISC (e.g. for the verification or comparison).

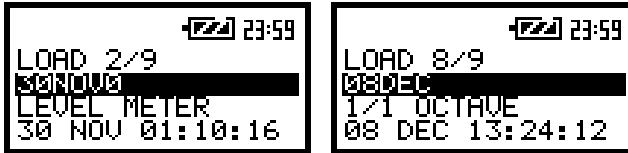


Notice: It is not possible to load the file during the execution of the measurements. On such attempt the message: „measurement in progress / MEASUREMENT IN PROGRESS” is displayed for about 2 seconds.



The view of the screens during the execution of the LOAD operation

The current number of the file and the total number of the saved files is displayed in the first line. The name of the file is displayed inversely in the second line (its current number is presented in the first line). The type of the current file (**LEVEL METER**, **1/1 OCTAVE** or **1/3 OCTAVE**) is given in the third line. The date and the time of the **SAVE** operation is displayed in the fourth line. The change of the current file with the unit step can be done after pressing the <◀>, <▶> push-buttons. The longer step is available after pressing the <◀>, <▶> push-buttons in conjunction (or in sequence) with the <SHIFT>.

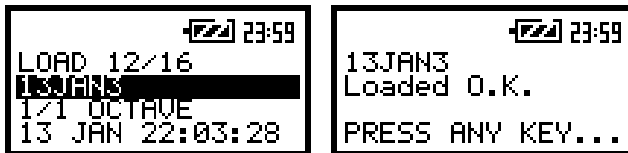


The view of the screens during the overview of the file list

The name of the file is accepted and the file is loaded after pressing the <ENTER> push-button. The message is displayed with the name of the selected file during the execution of the operation i.e.:

13JAN3
Loading. . .

The next message is displayed after successful end of loading operation. The instrument waits for the reaction of the user (any push-button should be pressed except the <SHIFT> one) and after pressing a push-button it returns to the **FILE** list.

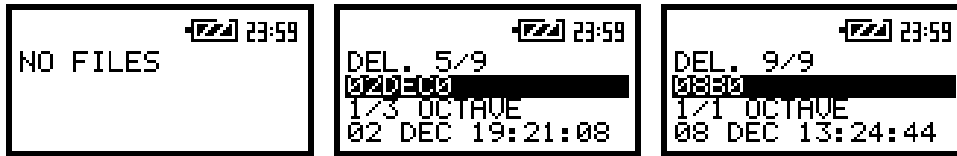


The view of the screens after the execution of the LOAD operation

Removing a file with the measurement results from memory – DELETE position

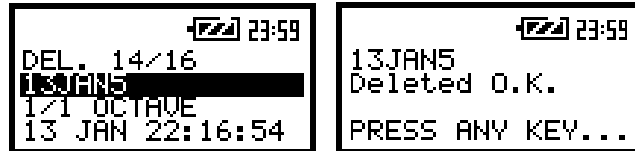
The **DELETE** position is used to remove a file from memory. The same data about the existing in the instrument files as in the **LOAD** position are displayed on the screen after opening **DELETE** position (pressing the <ENTER> push-button). The change of the current file with the unit step can be done

pressing the <◀>, <▶> push-buttons. The longer step is available after pressing the <◀>, <▶> push-buttons in conjunction (or in sequence) with the <SHIFT> one.



The view of the screens during the execution of the DELETE operation

The name of the file is accepted and the file is deleted after pressing the <ENTER> push-button. The message is displayed after the successful end of the operation. The instrument waits for the reaction of the user (any push-button should be pressed except the <SHIFT> one) and after pressing a push-button it returns to the *FILE* list.



The view of the screens after the execution of the DELETE operation

Removing all files with measurement results from memory – DELETE ALL position

The **DELETE ALL** position is used to remove all files from memory. The instrument requests the confirmation of the operation after entering this position (after pressing the <ENTER> push-button). The next pressing the <ENTER> push-button, when the **NO** option is selected, causes the closing of the position and the return to the *FILE* list. The selection of the **NO** or **YES** option is possible using the <◀>, <▶> push-buttons.



The view of the screens during the execution of the DELETE ALL operation

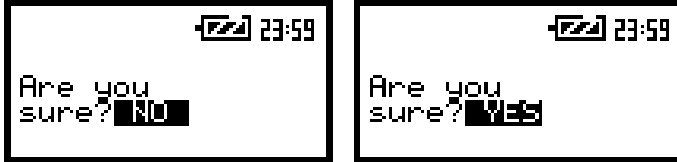
The <ENTER> push-button pressing, when the **YES** option is selected, deletes all existing files. The message is displayed after the successful execution of the operation. The instrument waits for the reaction of the user (any push-button should be pressed except the <SHIFT> one) and after pressing a push-button it returns to the *FILE* list.



The view of the screen after the DELETE ALL operation

Removing all files with results from buffer's memory – CLEAR BUFFER position

The **CLEAR BUFFER** position is used to delete the whole contents of the buffer's memory of the instrument (all files are erased). It is not possible to leave any data in the buffer. The instrument requests the confirmation of the operation after entering this position (after pressing the **<ENTER>** push-button). The next pressing of the **<ENTER>** push-button, when the **NO** option is selected, causes the closing of the position and the return to the **FILE** list. The selection of the **NO** or **YES** option is possible using the **<◀>**, **<▶>** push-buttons.

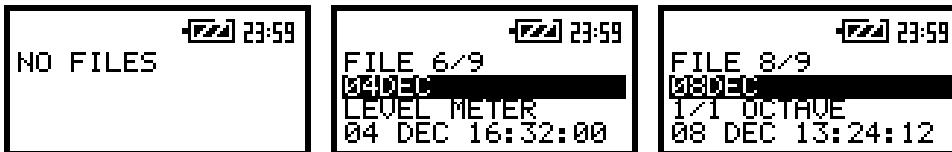


The view of the screens during the execution of the **CLEAR BUFFER** operation

The instrument returns to the **FILE** list after the successful execution of the **CLEAR BUFFER** operation.

Checking the contents of the memory – CATALOGUE position

The **CATALOGUE** position is used for checking the contents of the memory (the list of the files). The same data about the existing in the instrument files as in the **LOAD** position are displayed on the screen after opening **CATALOGUE** position (by pressing the **<ENTER>** push-button). The change of the current file with the unit step can be done after pressing the **<◀>**, **<▶>** push-buttons. The longer step is available after pressing the **<◀>**, **<▶>** push-buttons in conjunction (or in sequence) with the **<SHIFT>** one. The position is closed and the instrument returns to the **FILE** list after pressing the **<ENTER>** push-button.



The view of the screens during the execution of the **CATALOGUE** operation

Checking the free space in the memory – FREE SPACE position

The **FREE SPACE** position is used to read out the free space in the FLASH DISC memory of the instrument (after pressing the **<ENTER>** push-button). The position is closed and the instrument returns to the **FILE** list after once more pressing the **<ENTER>** push-button.



The view of the screen during the execution of the **FREE SPACE** operation

Operations in buffer

Usunięto: BUFFER

The buffer is the selected part of the instrument's memory dedicated for storing the huge number of the measurement results. Its capacity is ca 1.4 Mbytes. The buffer operation is strongly dependent on the operation mode of the instrument (the selected function) and the setting of the **AUTO REPEAT** function.



Notice: The new file in the buffer is created after each start of the new measurement. The contents of the buffer (all registered files) are erased after execution the **CLEAR BUFFER** operation from the **FILE** list. It is not possible to erase only one or few selected files from the buffer!

1. In the **Sound Level Meter** mode when the **AUTO REPEAT** function is switched off ([]), one selected result from each of three profiles can be logged in the buffer's file with the time step defined in the **BUF. STEP** position. For three profile results logging this gives more then 130 hours (or 5 days) of the continuous work. If the results from only one profile are saved the buffer will be filled after 400 hours (17 days) of work!
2. In the **SLM**, when the **AUTO REPEAT** function is switched on ([√]), the selected results for all profiles are stored in the buffer's file after each integration time set in the **INT. TIME** position. The number of the repetition of the storing process is set in the **REP. CYCLE** (cf. the description of the **MEASURE SETUP** sub-list). The **Inf** value means that the storing is repeated up to pressing the **<ST/SP>** push-button.

EXAMPLE 1.

Assuming that the following settings are selected:

MEASURE SETUP sub-list **INT. TIME:** 10 m,
AUTO REPEAT: [],
BUF. STEP: 1 s,
PROFILES SETUP sub-list **PROFILE 1:** BUFFER: PEAK,
PROFILE 2: BUFFER: RMS,
PROFILE 3: BUFFER: None.

Then after 10 minutes (the value set in **INT. TIME** position) the current file in the buffer will contain 600 **PEAK** values from the **profile 1** and 600 **one second RMS** values (one second set in the **BUF. STEP** position) from the **profile 2**.

EXAMPLE 2.

Assuming that the instrument set-up is as follows:

MEASURE SETUP sub-list **INT. TIME:** 1 m,
AUTO REPEAT: [√],
REP. CYCLE: Inf,
PROFILES SETUP sub-list **PROFILE 1:** BUFFER: PEAK,
PROFILE 2: BUFFER: RMS,
PROFILE 3: BUFFER: None.

Then after 10 minutes the current file in the buffer will contain 10 **PEAK** values (one for each minute – the value set in the **INT. TIME** position) from the **profile 1** and 10 **RMS** (also one minute) values from the **profile 2**.

Usunięto: results

Sformatowano

Usunięto: ©©

Sformatowano

Sformatowano ... [1]

Usunięto: instrument set-up is as follows

Usunięto: Lista ... [2]

Sformatowano

Sformatowano

Sformatowano

Usunięto: Lista ... [3]

Sformatowano

Sformatowano

Sformatowano

Usunięto:

Sformatowano ... [4]

Usunięto: ...PROFILE [5]

Sformatowano ... [6]

Usunięto: LEQ

Sformatowano

Usunięto: (one second) values

Sformatowano

Usunięto: PROFILE

Sformatowano

Usunięto: Lista ... [7]

Sformatowano

Sformatowano

Sformatowano ... [8]

Usunięto: Lista ... [9]

Sformatowano

Sformatowano

Sformatowano ... [10]

Usunięto:

Sformatowano ... [11]

Usunięto: PROFILE

Sformatowano ... [12]

Usunięto: LEQ

Sformatowano

Usunięto: PROFILE

Sformatowano



Notice: The setting in a profile **BUFFER: None** will result in bypassing the registration of the measurement results from this profile in the current file in the buffer. In the same time it will create more space in the buffer for the results from other profiles (independent instruments)!

3. In **1/1 OCTAVE** or **1/3 OCTAVE** analysis, when the **AUTO REPEAT** function is switched off ([]), one selected result from each of three profiles can be logged in the current file of the buffer with the step selected in the **BUF. STEP** position. **The results of octave analysis, so-called spectra, are logged in buffer's file in the same way as the single results!** The control settings of the process are available in the **PROFILES SETUP** sub-list of **INPUT** list (**BUFFER** position of **SPECTRUM** sub-list with the parameters: **None, PEAK, MAX, MIN** and **RMS**).

4. In **1/1 OCTAVE** or **1/3 OCTAVE** analysis, when the **AUTO REPEAT** function is switched on ([√]), the selected results from all three profiles, together with **1/1 OCTAVE** or **1/3 OCTAVE** so-called spectrum, are stored in the buffer after each **INT. TIME** period. The number of the repetition of the storing process is set in the **REP. CYCLE** position (cf. the description of the **MEASURE SETUP** sub-list). The **Inf** value means that the storing is repeated up to pressing the <ST/SP> push-button.

EXAMPLE 3.

To force the every second spectra logging in a file of the buffer without the results measured in three profiles the user has to set:

```

MEASURE SETUP sub-list INT. TIME: 1 s,
                        AUTO REPEAT: [√],
                        REP. CYCLE: Inf,
PROFILES SETUP sub-list PROFILE 1: BUFFER: None,
                        PROFILE 2: BUFFER: None,
                        PROFILE 3: BUFFER: None,
                        SPECTRUM: BUFFER: RMS,
FILE list              SAVE OPTIONS: AUTO SAVE [√].
    
```

EXAMPLE 4.

Assuming that the following settings were selected:

```

MEASURE SETUP sub-list INT. TIME: 1 m,
                        AUTO REPEAT: [ ]
                        BUF. STEP: 1 s,
PROFILES SETUP sub-list PROFILE 1: BUFFER: None,
                        PROFILE 2: BUFFER: None,
                        PROFILE 3: BUFFER: None,
                        SPECTRUM: BUFFER: RMS,
FILE list              SAVE OPTIONS: AUTO SAVE [√].
    
```

Then after finishing one minute measurement (the setting in the **INT. TIME** position) the current file in the buffer will contain 60 spectra with the **RMS** results registered with one second step (the value set in the **BUF. STEP** position).

Usunięto: ctave
Usunięto: Mode

Usunięto: the
Usunięto: other
Usunięto: Lista
Usunięto: .
Sformatowano
Sformatowano
Usunięto: Lista
Usunięto: .
Sformatowano
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Sformatowano

Usunięto: PRZYKŁAD
Usunięto: Zakładając, że wybrano następujące nastawy:

Usunięto: Lista
Usunięto: .
Sformatowano
Sformatowano
Sformatowano
Usunięto: Lista
Usunięto: .
Sformatowano
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Sformatowano
Sformatowano
Sformatowano

Usunięto: Lista FILE . SAVE OPTIONS: AUTO SAVE [√].
to po zakończeniu jednodominutowego pomiaru Bufor będzie zawierał 60 rejestrowanych co 1 sekundę widm jedynie z wynikami RMS.
Sformatowano

5.4. PRINTING REPORTS

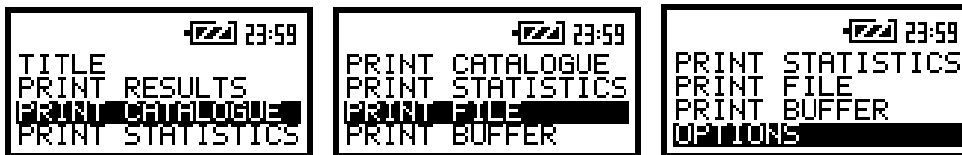
The printed reports of the sound measurement results in the predefined format can be obtained by means of the **REPORT** list after pressing the **<REPORT>** push-button (the **<FILE>** and the **<SHIFT>** pressed in conjunction or in a sequence).

In order to obtain the report the user has to **connect the instrument to the printer's RS 232 port** using the proper cable **or**, in the case when the printer has no such port, **connect the parallel output of the printer with the SV 52 parallel-serial interface and** using the SC 07 cable **connect the instrument with the interface**. The exemplary listings of the reports are given in the Appendix F.



Notice: Switch the power off before connecting the instrument to any external device (e.g. a printer or a Personal Computer).

Selection of the options and functions for printing out the results – **REPORT** list



The view of the screens in the **REPORT** list

The **REPORT** list contains the elements, which enable the user to give the header to the printed report (**TITLE** position), to print out the measurement results on the default printer (**PRINT RESULTS** position), to print out the catalogue of the files (**PRINT CATALOGUE** position), to print out the statistics of the measurement results (**PRINT STATISTICS** position), to print out the contents of the selected file (**PRINT FILE** position), to print out the contents of the selected file from the buffer (**PRINT BUFFER** position) as well as to determine the options of the report (**OPTIONS** sub-list).



Notice: All reports are printed in the character format using ASCII set.

Edition of the user's text to be added to the reports – **TITLE** position



The view of the screens after entering the edition of the report's header

The **TITLE** position enables the user to edit the text added to the file and to the report to be printed; this operation is performed in the same way as it was described in the case of the **FILE NAME** window. In the first line of the screen, in the brackets the number (counted from the beginning of the text) of the edited character is displayed. The position is closed and the instrument returns to the **REPORT** list after pressing the **<ENTER>** push-button.



The view of the screens during the edition of the report's header

Printing of the measurement results – PRINT RESULTS position

The **PRINT RESULTS** position enables the user to print the report on the attached printer. After pressing the **<ENTER>** push-button, in the case when a measurement was already performed and a result is available, the message is displayed:

PRINT RESULTS
printing. . .

When the message is on the screen the data are transferred from the instrument to the attached printer. The instrument returns to the **REPORT** list after transferring all data.

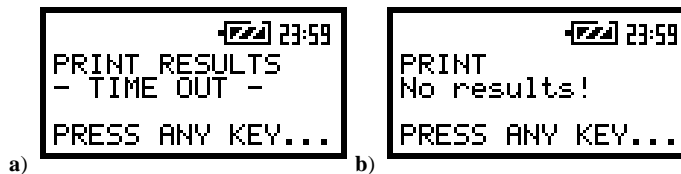
The following message is displayed on the screen after the printing if the **Prompt** parameter was selected in the **EJECT P.** position of the **OPTIONS** sub-list. The user has to answer in this case if the paper in the printer has to be ejected to the new page. The change of the available answers is possible after pressing the **<◀>**, **<▶>** push-buttons. The return to the **REPORT** list is performed after pressing the **<ENTER>** push-button with the possible ejection of the paper to the new page.



The view of the screens after printing with the confirmation request of the paper ejection

The similar message is displayed after printing the catalogue of the files, the statistics of the results, the contents of the selected file and the contents of the selected file in the buffer (**PRINT CATALOGUE**, **PRINT STATISTICS**, **PRINT FILE** and **PRINT BUFFER**).

The message about the time limit is displayed in the case when the printer is not connected or there is any other reason that it does not receive the data. The instrument waits for the reaction of the user (any push-button should be pressed except the **<SHIFT>**) and after pressing a push-button it returns to the **REPORT** list. Another message is presented and the instrument waits for the reaction of the user in the case when there is no data to be printed.



The view of the screens during the results printing when there is no transfer (a) and no data (b)

Printing of the file's catalogue – PRINT CATALOGUE position

The **PRINT CATALOGUE** position enables the user to print the catalogue of the files stored in the instrument on the attached printer. After pressing the **<ENTER>** push-button the message is displayed:

PRINT CATALOGUE
printing...

When the message is on the screen the data are transferred from the instrument to the attached printer. The instrument returns to the **REPORT** list after transferring all data.



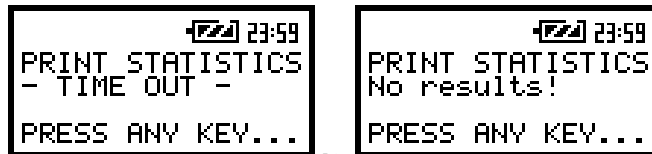
The view of the screen during the catalogue printing when there is no data transfer

Printing of the statistics of measurement results – PRINT STATISTICS position

The **PRINT STATISTICS** position enables the user to print the results of the statistics analysis on the attached printer. After pressing the **<ENTER>** push-button, in the case when a measurement was already performed and a result is available, the message is displayed:

PRINT STATISTICS
printing...

When the message is on the screen the data are transferred from the instrument to the attached printer. The instrument returns to the **REPORT** list when all data are transferred. The message about the time limit is displayed in the case when the printer is not connected or there is any other reason that it does not receive the data. The instrument waits for the reaction of the user (any push-button should be pressed except the **<SHIFT>**) and after pressing a push-button it returns to the **REPORT** list. Another message is presented and the instrument waits for the reaction of the user in the case when there is no data to be printed.



a) b)

The view of the screens during the statistics printing when there is no transfer (a) and no data (b)

Printing of the measurement results from the selected file – PRINT FILE position

The **PRINT FILE** position enables the user to print the contents of the selected file. The user can change the number of the file pressing the **<◀>**, **<▶>** push-buttons. The selection of the first or the last file in the catalogue is possible after pressing the **<◀>** or **<▶>** push-buttons together with the **<SHIFT>** one – respectively.

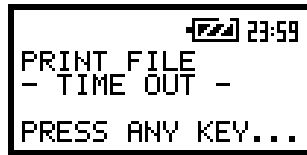


The view of the screens during the selection of the file to be printed

The contents of the selected file is printed on the connected printer after pressing the **<ENTER>** push-button. The following message is displayed on the screen during the printing:

**PRINT FILE
printing...**

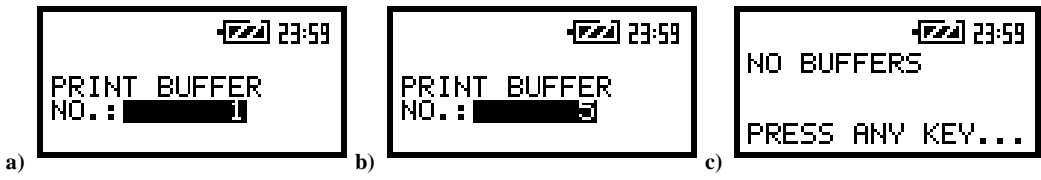
The instrument returns to the **REPORT** list when all data are transferred. The message about the time limit is displayed in the case when the printer is not connected or there is any other reason that it does not receive the data. The instrument waits for the reaction of the user (any push-button should be pressed except the <SHIFT>) and it returns to the **REPORT** list after pressing a push-button.



The view of the screen during the file printing when there is no data transfer

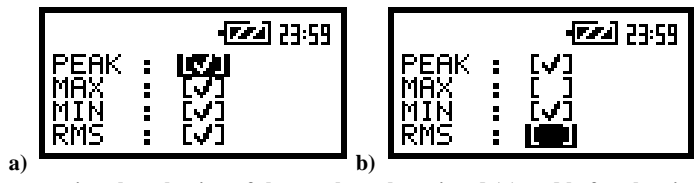
Printing of the results from the selected buffer's file – PRINT BUFFER position

The **PRINT BUFFER** position enables the user to print the contents of the selected file in the buffer. The user can change the number of the file in the buffer pressing the <◀>, <▶> push-buttons. The selection of the first or the last file in the buffer is possible after pressing the <◀> or <▶> push-buttons together with the <SHIFT> one – respectively. The special message is displayed when there is no file in the buffer. The instrument waits in this case for the reaction of the user (any push-button should be pressed except the <SHIFT>) and after pressing a push-button it returns to the **REPORT** list.



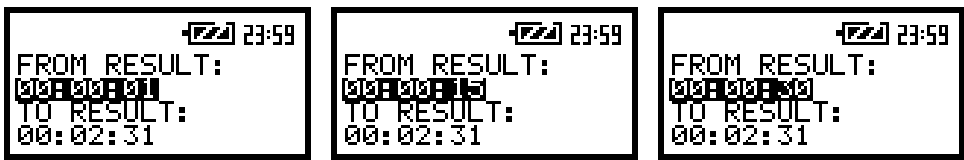
The screens during the selection of the buffer's file for printing (a), (b) and when it is no file in the buffer (c)

The user can select which results from the existed file in the buffer has to be printed after pressing the <ENTER> push-button. For example from the figure presented below one can deduct that in the **first profile** the **PEAK** value was stored in the buffer and it **has to be printed**, in the **second profile** the **MAX** value was stored in the buffer and it **has not to be printed** and in the **third profile** the **MIN** value was stored in the buffer and it **has to be printed** and stored in **1/1 OCTAVE** or **1/3 OCTAVE** analysis the **RMS** values **has not to be printed**.



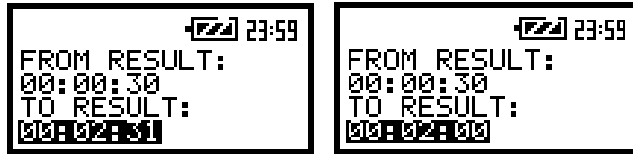
The screens after entering the selection of the results to be printed (a) and before leaving this window (b)

The user can select which part of the results stored in the selected file from the buffer should be printed out after pressing once more the <ENTER> push-button and setting the start time and the end time.



The screens during the setting of the start time of the results stored in the buffer's file for printing

The setting of the start time (**FROM RESULT**) and the end time (**TO RESULT**) is performed by pressing the <◀>, <▶> push-buttons.



The screens during the setting of the end time of the results stored in the buffer's file for printing

The contents of the selected results from the buffer's file is printed on the connected printer after pressing the <ENTER> push-button. The following message is displayed on the screen during the printing:

PRINT BUFFER
printing. . .

The instrument returns to the **REPORT** list when all data are transferred. The message about the time limit is displayed in the case when the printer is not connected or there is any other reason that it does not receive the data. The instrument waits for the reaction of the user (any push-button should be pressed except the <SHIFT>) and after pressing a push-button it returns to the **REPORT** list.



The view of the screen during the printing of the file from the buffer when there is no data transfer

Selection of the printing options – OPTIONS sub-list

Using the **OPTIONS** sub-list the user can select the format of the listing (**FORMAT** position) and can control the way the paper is ejected in the printer (**EJECT P.** position).

Selection of the format of the print out – FORMAT position

The **FORMAT** position enables the user to select the format of the listing (**A4** and **A5** options are available; the selection is made by pressing the <◀>, <▶> push-buttons).

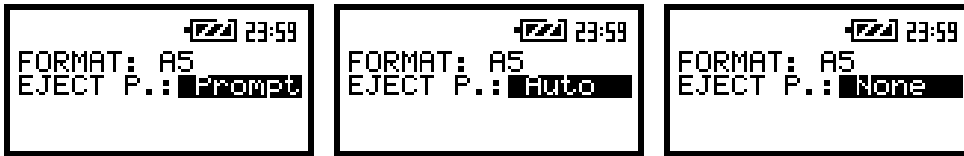


The view of the screens with the **OPTIONS** sub-list opened – the selection of the format

Controlling the paper ejection after print out – EJECT P. position

The **EJECT P.** position enables the user to control the ejection of the paper after the listing is done. The following options are available: **Prompt** (the instrument asks whether to eject the page after printing report, catalogue, buffer or statistics), **Auto** (after printing the paper is ejected) and **None** (the paper is not

ejected after printing); the selection is possible by means of the <◀>, <▶> push-buttons. In particular, it is possible to have one result after another using the **None** or **Prompt** options.



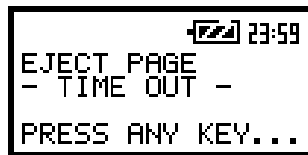
The view of the screens with the **OPTIONS** sub-list opened – the selection of the paper ejection

The request is displayed on the screen after the printing of the measurement results, the catalogue of the files, the statistics of the results, the contents of the selected file and the contents of the selected file in the buffer (**PRINT RESULTS**, **PRINT CATALOGUE**, **PRINT STATISTICS**, **PRINT FILE** and **PRINT BUFFER**) if the **Prompt** parameter was selected in the **EJECT P.** position of the **OPTIONS** sub-list. The user has to answer in this case if the paper in the printer has to be ejected to the new page. The change of the available answers is possible after pressing the <◀>, <▶> push-buttons. The return to the **REPORT** list is performed after pressing the <ENTER> push-button with the possible ejection of the paper to the new page.



The view of the screens after a printing with the request for the confirmation of the paper ejection

The message about the time limit is displayed in the case when the printer is not connected or there is any other reason that it does not eject a paper. The instrument waits for the reaction of the user (any push-button should be pressed except the <SHIFT>) and after pressing a push-button it returns to the **REPORT** list.



The view of the screen after a printing when there is not possible to eject a paper

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|---|--------------------------|----------------------------|
| Strona 19: [1] Sformatowano Sformatowano | Andrzej Podgórski | 2001-05-23 15:19:00 |
| Strona 19: [1] Sformatowano Sformatowano | Andrzej Podgórski | 2001-05-23 15:21:00 |
| Strona 19: [1] Sformatowano Sformatowano | Andrzej Podgórski | 2001-05-23 15:21:00 |
| Strona 19: [2] Usunięto Lista | Andrzej Podgórski | 2001-05-23 15:22:00 |
| Strona 19: [2] Usunięto | Andrzej Podgórski | 2001-05-23 15:22:00 |
| Strona 19: [3] Usunięto Lista | Andrzej Podgórski | 2001-05-23 15:23:00 |
| Strona 19: [3] Usunięto | Andrzej Podgórski | 2001-05-23 15:23:00 |
| Strona 19: [4] Sformatowano Sformatowano | Andrzej Podgórski | 2001-05-23 15:25:00 |
| Strona 19: [4] Sformatowano Sformatowano | Andrzej Podgórski | 2001-05-23 15:25:00 |
| Strona 19: [5] Usunięto | Andrzej Podgórski | 2001-05-23 15:24:00 |
| Strona 19: [5] Usunięto PROFILE 1 | Andrzej Podgórski | 2001-05-23 15:27:00 |
| Strona 19: [6] Sformatowano Sformatowano | Andrzej Podgórski | 2001-05-23 15:25:00 |
| Strona 19: [6] Sformatowano Sformatowano | Andrzej Podgórski | 2001-05-23 15:29:00 |
| Strona 19: [7] Usunięto Lista | Andrzej Podgórski | 2001-05-23 15:28:00 |
| Strona 19: [7] Usunięto | Andrzej Podgórski | 2001-05-23 15:28:00 |
| Strona 19: [8] Sformatowano Sformatowano | Andrzej Podgórski | 2001-05-23 15:28:00 |
| Strona 19: [8] Sformatowano Sformatowano | Andrzej Podgórski | 2001-05-23 15:28:00 |
| Strona 19: [9] Usunięto Lista | Andrzej Podgórski | 2001-05-23 15:28:00 |
| Strona 19: [9] Usunięto | Andrzej Podgórski | 2001-05-23 15:28:00 |
| Strona 19: [10] Sformatowano Sformatowano | Andrzej Podgórski | 2001-05-23 15:27:00 |
| Strona 19: [10] Sformatowano Sformatowano | Andrzej Podgórski | 2001-05-23 15:27:00 |
| Strona 19: [11] Sformatowano Sformatowano | Andrzej Podgórski | 2001-05-23 15:29:00 |
| Strona 19: [11] Sformatowano | Andrzej Podgórski | 2001-05-23 15:27:00 |

Sformatowano

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| Strona 19: [11] Sformatowano | Andrzej Podgórski | 2001-05-23 15:29:00 |
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Sformatowano

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| Strona 19: [11] Sformatowano | Andrzej Podgórski | 2001-05-23 15:29:00 |
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Sformatowano

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| Strona 19: [11] Sformatowano | Andrzej Podgórski | 2001-05-23 15:27:00 |
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Sformatowano

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| Strona 19: [12] Sformatowano | Andrzej Podgórski | 2001-05-23 15:27:00 |
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Sformatowano

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| Strona 19: [12] Sformatowano | Andrzej Podgórski | 2001-05-23 15:31:00 |
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Sformatowano