

## 5. AUXILIARY FUNCTIONS

### 5.1. DATA AVAILABLE ON THE DISPLAY – DISPLAY LIST

In order to open the *DISPLAY* list the user has to:

- press the <MENU> push-button,
- select from the main list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons, the **DISPLAY** text (highlight it inversely),
- press the <ENTER> push-button finely.

Pressing the <SHIFT> and <▲> (or <SHIFT> and <◀>) results in a movement to the first position of the opened list and pressing the <SHIFT> and <▼> (or <SHIFT> and <▶>) results in a movement to the last position of the opened list.



The view of the display in the main list; the *DISPLAY* text highlighted (displayed inversely)

The *DISPLAY* list is used for setting the various parameters which are mainly dedicated for the control of the display. The following items are present on this list:

<b>DISPLAY MODES</b>	enables one to select the mode of the measurement results presentation;
<b>DISPLAY SETUP</b>	enables one to change the scale in the graphical modes of result's presentation, select the results presented as Total values, choose the type of the presented spectrum;
<b>BUFFER VIEW</b>	enables one to view at the results stored in the files of the buffer;
<b>BATTERY</b>	enables one to check the state of the internal battery of the unit;
<b>CONTRAST</b>	enables one to set the contrast of the unit's display;
<b>BACKLIGHT</b>	enables one to set the brightness of the backlight of the display and the keyboard;
<b>UNIT LABEL</b>	informs the user about the serial number of the unit, the version of the internal software and the standards to which conform the measurement results.

In each available position any change is performed by means of the <◀>, <▶> push-buttons. In order to confirm the selection the <ENTER> push-button has to be pressed. After this confirmation the opened window or list is closed. In order to ignore any changes made in the opened window or list the user has to press the <ESC> push-button.



The view of the displays with the *DISPLAY* list

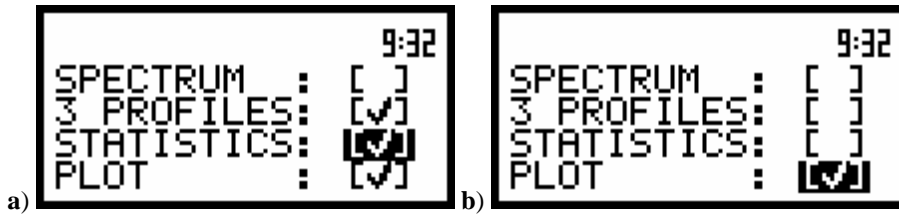
#### ***Selection of the modes of measurement results presentation - DISPLAY MODES***

The **DISPLAY MODES** (path: MENU / DISPLAY / DISPLAY MODES) sub-list enables one the selection of the currently available modes of displaying the results of measurement. The selection is made by placing or replacing the special character in the inversely displayed position of the

**DISPLAY MODES** sub-list by means of the <◀>, <▶> push-buttons. In order to confirm the selection the user has to press the <ENTER> push-button. The mode of the results presentation is related with the selection of the instrument's function (**SLM** or **VLM**, **1/1 OCTAVE**, **1/3 OCTAVE** or **FFT** analyser). Only One Profile mode 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:

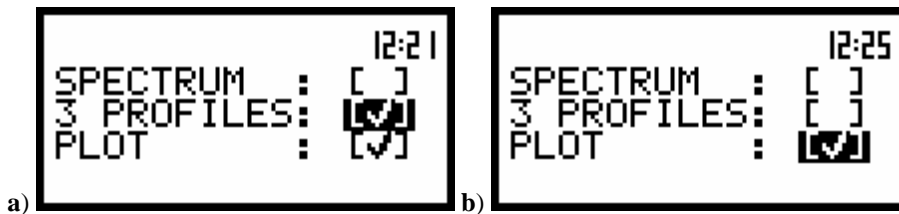
- **One Profile**,
- **3 PROFILES**,
- **STATISTICS**,
- **PLOT** (time history).



The view of the displays with the **DISPLAY MODES** (*path: MENU / DISPLAY / DISPLAY MODES*) sub-list for **SLM**, opened and active all modes of the measurement results presentation (a) and some of the modes switched off (b)

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

- **One Profile**,
- **3 PROFILES**,
- **PLOT** (time history).



The view of the displays with the **DISPLAY MODES** (*path: MENU / DISPLAY / DISPLAY MODES*) sub-list for **VL** opened and active all modes of the measurement results presentation in the vibration level mode (a) and some of the modes 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** instead of **PEAK**, **MAX**, **MIN** or **RMS** in the case of **SLM** and **PEAK**, **P-P**, **MAX** or **RMS** in the case of **VLM**) the **NO RESULTS** text is displayed after the first input to this mode (see Figure below). When the **PLOT** is selected as active and the **BUFFER:None** for all profiles is set, the **PLOT** mode of results presentation is skipped.

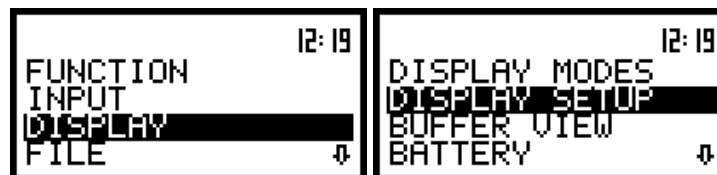


The view of the display in the **PLOT** mode when there is nothing in the buffer to be displayed (after setting **PLOT** as active)

Each position of the **DISPLAY MODES** 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 (in the first case without taking into account any changes made in the **DISPLAY MODES** sub-list and in the latter case - confirming all changes done in the sub-list).

### **Selection of the parameters in graphical results presentations - DISPLAY SETUP**

The **DISPLAY SETUP** (*path: MENU / DISPLAY / DISPLAY SETUP*) sub-list enables the user to change several parameters of the graphical results presentations. Namely one can select, using the **DISPLAY SCALE** sub-list, 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**). Using the **TOTAL VALUES** sub-list it is possible to select the weighted filters used in the calculation of the Total values. This sub-list appears on the display only in the case of **1/1 OCTAVE** or **1/3 OCTAVE** analyser. Using the **SPECTRUM TYPE** sub-list it is possible to select the type of the spectrum which has to be presented during vibration measurements. This sub-list appears on the display only in the case of the **VIBR. METER** mode selection. In order to enter the **DISPLAY SETUP** list one has to press the **<ENTER>** push-button on the inversely displayed **DISPLAY SETUP** text of the **DISPLAY** list. The **DISPLAY SETUP** sub-list is closed and the instrument returns to the **DISPLAY** list after pressing the **<ESC>** push-button, which ignores any changes in the positions of the sub-list or the **<ENTER>** push-button, which confirms the changes.



The view of the display with the **DISPLAY** list, the **DISPLAY SETUP** text highlighted

The **DISPLAY SCALE** (*path: MENU / DISPLAY / DISPLAY SETUP / 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 can be done in the **SCALE** position of the **DISPLAY SCALE** sub-list. It is also possible to change the “dynamics” of the vertical axis by means of the **DYNAMIC** position. In order to enter this list one has to press the **<ENTER>** push-button on the inversely displayed **DISPLAY SCALE** text of the **DISPLAY SETUP** list. The **DISPLAY SCALE** sub-list is closed and the instrument returns to the **DISPLAY SETUP** list after pressing the **<ESC>** push-button, which ignores any changes in the positions of the sub-list or the **<ENTER>** push-button, which confirms the changes.

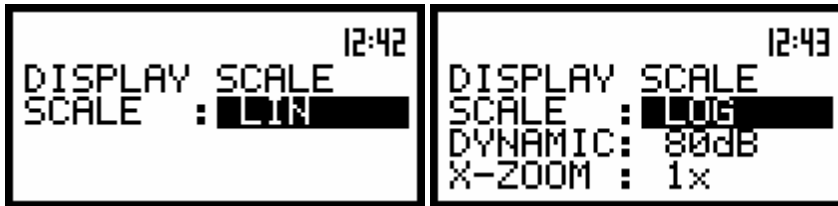


The view of the display with the **DISPLAY SETUP** list, the **DISPLAY SCALE** text highlighted

### **Setting the scale of the measurement results presentation - SCALE**

This position can be active only in the case of vibration measurements (when in the **MODE** sub-list the **VIBR. METER** is selected). Two options are available: **LIN** (linear) and **LOG** (logarithmic). In the case of the first one the graphical presentation and the units both are linear. In the latter case the graphical presentation is given in the logarithmic scale and the measurement results are expressed in decibels (the result is related to the values set in the **REFERENCE LEVEL**). It is possible to set the required option

using the <◀>, <▶> push-buttons. The confirmation of the selection is made by pressing the <ENTER> push-button. The return without taking into account any change is made after pressing the <ESC> push-button. In the case of sound measurements the **SCALE** position is not active. All results are presented in the logarithmic scale.



The view of the displays with the possible options of the vibration **SCALE**

**Scaling of the vertical axis of the graphical presentation - DYNAMIC**

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. This setting is always valid only for the measurements of sound and for vibrations if the **LOG** (logarithmic) scale was selected.



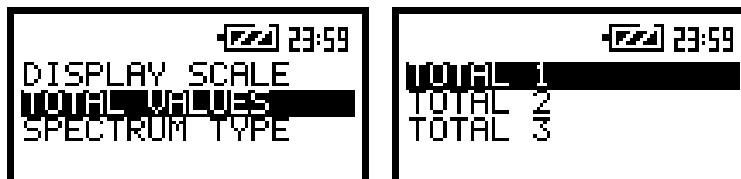
The view of the displays with the possible values of the vertical axis in **PLOT** and **SPECTRUM** presentations  
(path: MENU / DISPLAY / DISPLAY SETUP / DISPLAY SCALE)

**Scaling of the horizontal axis of the graphical presentation - X-ZOOM**

It is not possible, up to the version 4.05 of the internal software, to change by means of the <◀>, <▶> push-buttons the horizontal axis (the default value of the multiplier of this axis is equal to 1).

**Selection of the Weighted Filters - TOTAL VALUES**

The **TOTAL VALUES** (path: MENU / DISPLAY / DISPLAY SETUP / TOTAL VALUES) sub-list which is available only in **1/1 OCTAVE** or **1/3 OCTAVE** analysis; enables the user to select the weighted filters. In order to enter this list one has to press the <ENTER> push-button on the inversely displayed **TOTAL VALUES** text of the **DISPLAY SETUP** list. The **TOTAL VALUES** sub-list is closed and the instrument returns to the **DISPLAY SETUP** list after pressing the <ESC> push-button.



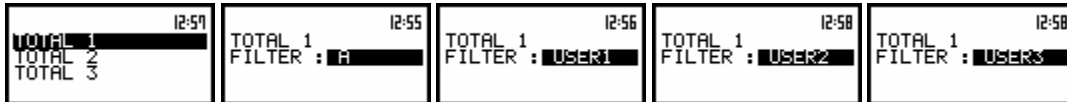
The view of the display with the **DISPLAY SETUP** list, the **TOTAL VALUES** text highlighted  
(path: MENU / DISPLAY / DISPLAY SETUP / TOTAL VALUES)

### *Selection of the Weighted Filters for the 1<sup>st</sup> profile - TOTAL 1*

The **TOTAL 1** sub-list enables one to select the weighted filter to be used for the calculation of the **TOTAL** value in the first profile (**FILTER**). In the case of vibration measurements it is also possible to determine the type (**TYPE**) of the filter and the calibration coefficient (**CAL. F.**). The **TOTAL 1** sub-list is closed and the instrument returns to the **TOTAL VALUES** list after pressing the **<ESC>** push-button, which ignores any changes in the positions of the sub-list or the **<ENTER>** push-button, which confirms the changes.

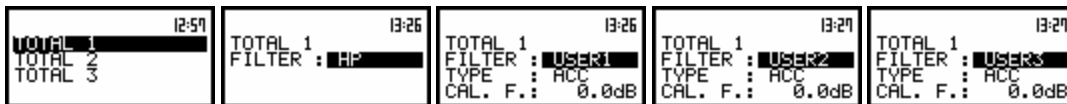
❖ **FILTER:** (position); available values of the weighted filters:

- in the case of sound measurements: **A**, **USER1**, **USER2**, **USER3** or any other sent to the unit by means of the interface,



The view of the displays with the **TOTAL 1** list opened in the case of sound measurements

- in the case of vibration measurements: **HP**, **USER1**, **USER2**, **USER3** or any other sent to the unit by means of the interface.



The view of the displays with the **TOTAL 1** list opened in the case of vibration measurements

❖ **TYPE:** (position available only for vibration measurements); available values if **USER1**, **USER2** or **USER3** was selected in the previous position: **ACC**, **VEL** and **DIL**; if the **HP** filter was selected this position is not displayed.



The displays with the **TOTAL 1** list opened in the case of vibration measurements; **USER3** filter selected

❖ **CAL. F.:** (position available only for vibration measurements); accessible if **USER1**, **USER2** or **USER3** was selected in the **FILTER** position; if the **HP** filter was selected this position is not displayed; available values (from **-60.0dB** to **60.0dB** with **0.1dB** step).



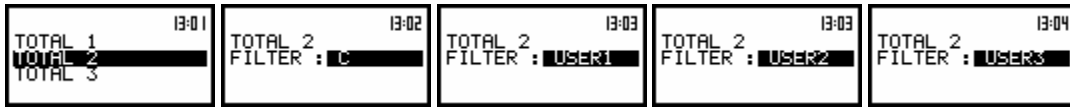
The displays with the **TOTAL 1** list opened in the case of vibration measurements; calibration factor setting

### *Selection of the Weighted Filters for the 2<sup>nd</sup> profile - TOTAL 2*

The **TOTAL 2** sub-list enables one to select the weighted filter to be used for the calculation of the **TOTAL** value in the second profile (**FILTER**), its type (**TYPE**) and the calibration coefficient (**CAL. F.**). The **TOTAL 2** sub-list is closed and the instrument returns to the **TOTAL VALUES** list after pressing the **<ESC>** push-button, which ignores any changes in the positions of the sub-list or the **<ENTER>** push-button, which confirms the changes.

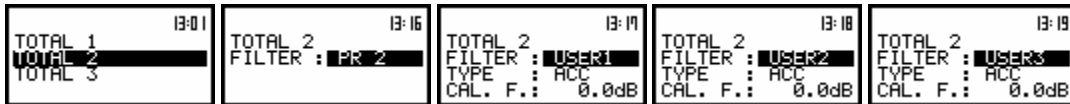
❖ **FILTER:** (position); available values of the weighted filters:

- o in the case of sound measurements: **C**, **USER1**, **USER2**, **USER3** or any other sent to the unit by means of the interface,



The view of the displays with the TOTAL 2 list opened in the case of sound measurements

- o in the case of vibration measurements: **PR 2**, **USER1**, **USER2**, **USER3** or any other sent to the unit by means of the interface.



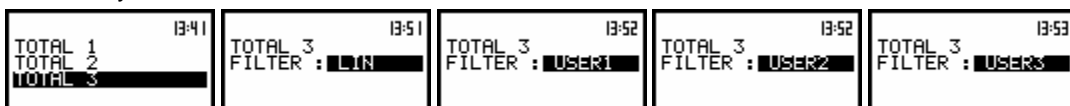
The view of the displays with the TOTAL 2 list opened in the case of vibration measurements

- ❖ **TYPE:** (position available only for vibration measurements); available values if **USER1**, **USER2** or **USER3** was selected in the previous position: **ACC**, **VEL** and **DIL**; if the **PR 2** filter was selected (the filter which was set in the 2<sup>nd</sup> profile) this position is not displayed.
- ❖ **CAL. F.:** (position available only for vibration measurements); accessible if **USER1**, **USER2** or **USER3** was selected in the **FILTER** position; if the **PR 2** filter was selected (the filter which was set in the 2<sup>nd</sup> profile) this position is not displayed; available values (from **-60.0dB** to **60.0dB** with **0.1dB** step).

### *Selection of the Weighted Filters for the 3<sup>rd</sup> profile - TOTAL 3*

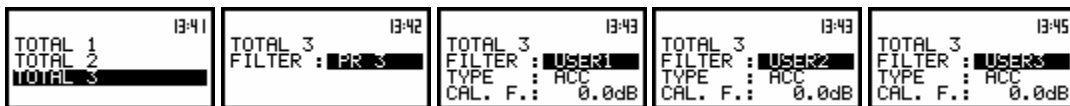
The **TOTAL 3** sub-list enables one to select the weighted filter to be used for the calculation of the **TOTAL** value in the third profile (**FILTER**), its type (**TYPE**) and the calibration coefficient (**CAL. F.**). The **TOTAL 3** sub-list is closed and the instrument returns to the **TOTAL VALUES** list after pressing the **<ESC>** push-button, which ignores any changes in the positions of the sub-list or the **<ENTER>** push-button, which confirms the changes.

- ❖ **FILTER:** (position); available values of the weighted filters:
  - o in the case of sound measurements: **LIN**, **USER1**, **USER2**, **USER3** or any other sent to the unit by means of the interface,



The view of the displays with the TOTAL 3 list opened in the case of sound measurements

- o in the case of vibration measurements: **PR 3**, **USER1**, **USER2**, **USER3** or any other sent to the unit by means of the interface.



The view of the displays with the TOTAL 3 list opened in the case of vibration measurements

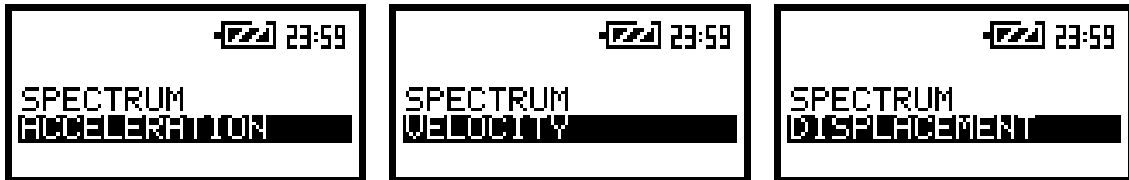
- ❖ **TYPE:** (position available only for vibration measurements); available values if **USER1**, **USER2** or **USER3** was selected in the previous position: **ACC**, **VEL** and **DIL**; if the **PR 3** filter was selected (the filter which was set in the 3<sup>rd</sup> profile) this position is not displayed.
- ❖ **CAL. F.:** (position available only for vibration measurements); accessible if **USER1**, **USER2** or **USER3** was selected in the **FILTER** position; if the **PR 3** filter was selected (the filter which was set in the 3<sup>rd</sup> profile) this position is not displayed; available values (from **-60.0dB** to **60.0dB** with **0.1dB** step).

### Selection of the Spectrum Type - SPECTRUM TYPE

The **SPECTRUM TYPE** (*path: MENU / DISPLAY / DISPLAY SETUP / SPECTRUM TYPE*) (position) enables the user to change the spectrum type; available values of this position: **ACCELERATION**, **VELOCITY** and **DISPLACEMENT**. This sub-list is available only for the vibration measurements. In order to enter this list one has to press the **<ENTER>** push-button on the inversely displayed **SPECTRUM TYPE** text of the **DISPLAY SETUP** list. The **SPECTRUM TYPE** sub-list is closed and the instrument returns to the **DISPLAY SETUP** list after pressing the **<ESC>** push-button, which ignores any changes in the positions of the sub-list or the **<ENTER>** push-button, which confirms the changes.



The view of the display with the *DISPLAY* list, the **SPECTRUM TYPE** text highlighted  
(*path: MENU / DISPLAY / SPECTRUM TYPES*)



The view of the display with the **SPECTRUM TYPE** with the available values

### Selection of the buffer's file to the display presentation - BUFFER VIEW

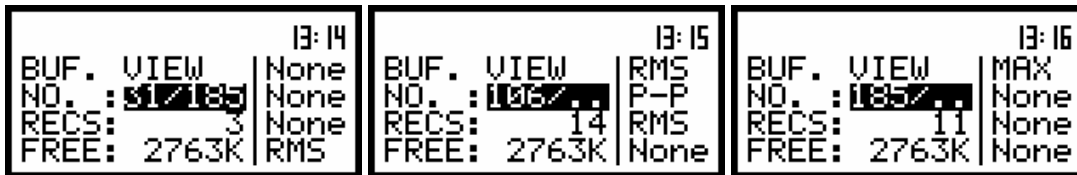
The **BUFFER VIEW** sub-list enables the user to examine the contents of the buffer. In order to open this sub-list the user has to press the **<ENTER>** push-button when the **BUFFER VIEW** text is displayed inversely. The following parameters of the buffer are presented on the instrument's display:

- The selected number of the file in the buffer and the number of all saved files (**NO:**).
- The number of the records in the file, which number is displayed in the previous line (**RECS:**).
- The size of the empty, still available memory (**FREE:**).



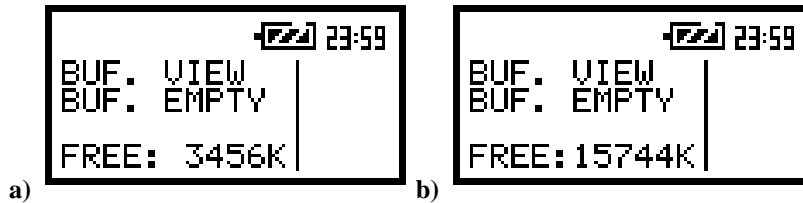
The view of the display with the *DISPLAY* list, the **BUFFER VIEW** text highlighted  
(*path: MENU / DISPLAY / BUFFER VIEW*)

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 display. The change of the number of the file in the buffer is done after pressing the **<◀>**, **<▶>** push-buttons.



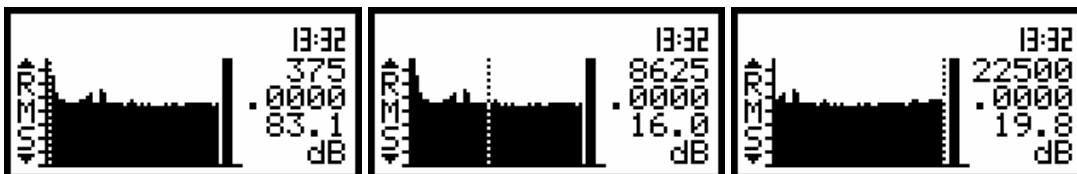
The view of the displays with the **BUFFER VIEW** sub-list opened: the selection of the file to be seen

The display 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).



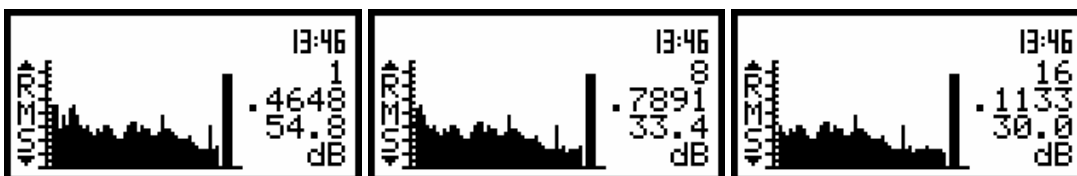
The view of the display with **BUFFER VIEW** sub-list in the case when there are no files in the buffer in the unit with 8 MB of internal memory (a) and with 32 MB of internal memory (b)

The contents of the selected file from the buffer is displayed after pressing the **<ENTER>** push-button. The cursor position is changed 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, the value with the units and the indicator of the filter are presented on the right side of the display.



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

The scrolling of the display 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.

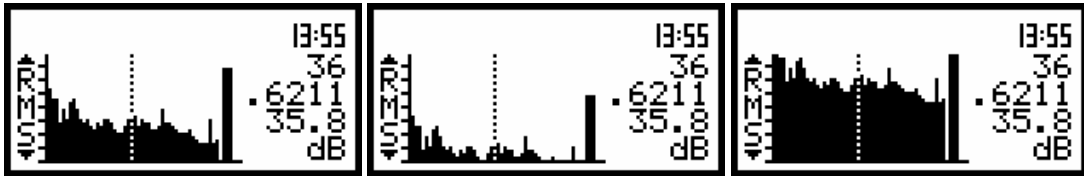


The view of the displays with the selected file from the buffer; the scrolling to the right



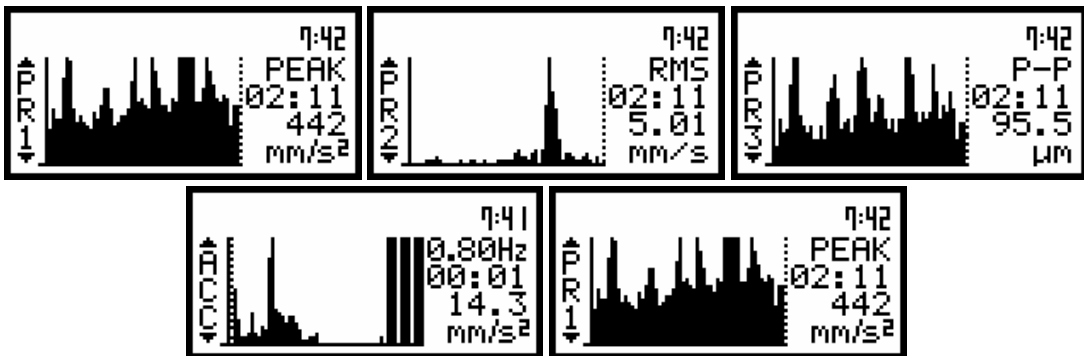
The view of the displays with the selected file from the buffer; the scrolling to the left

The position of the horizontal axis in relation to the vertical one can be changed after pressing the <^>, <v> push-buttons together with the <SHIFT> one.



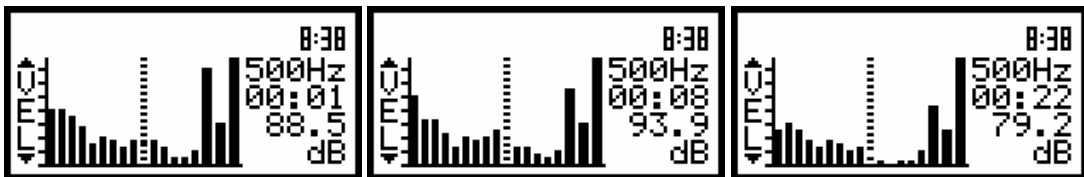
The view of the displays with the selected file from the buffer; the change of the axis relation

The selected file in the buffer can contain the measurement results from up to 3 profiles (i.e. **PEAK**, **RMS**, **P-P**) and the spectra. The change of the displayed result is possible after pressing the <^> or <v> push-button. The results on the display are in this case changed in the cycle (i.e. **PEAK** -> **RMS** -> **P-P** -> **spectrum** -> **PEAK** -> **RMS** and so on).



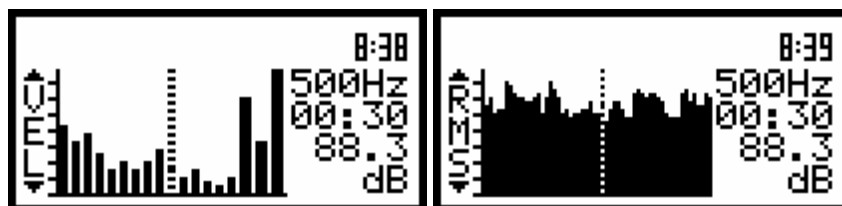
The view of the displays with the selected file from the buffer; the change of the result after pressing <^> or <v> push-button

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 <SHIFT> push-button together with <^> for the spectra stored later and to press the <SHIFT> one together with <v> for the spectra saved earlier.



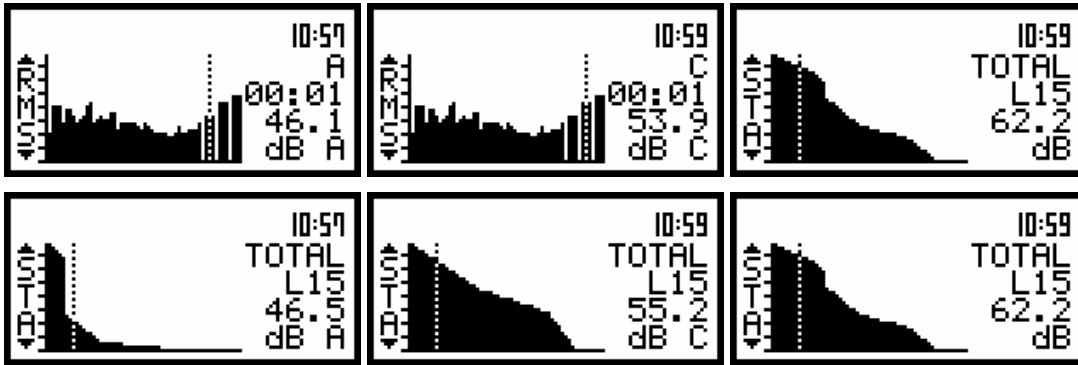
The view of the displays with the selected file from the buffer containing spectra; the change of the spectra after pressing <SHIFT> together with <^> or <v>

In the file of the buffer containing the results of **1/1 OCTAVE** or **1/3 OCTAVE** analysis also the time history for each filter is stored. The user can observe these values pressing the <ENTER> push-button. The next pressing of <ENTER> or <ESC> causes the return to the displaying of spectrum.



The view of the displays with the selected file from the buffer containing spectra; the change between spectrum and time history after pressing <ENTER>

The user can observe the time history plot on the output of each octave or third octave filter as well as for the whole band (TOTAL value). In the case of sound measurements the TOTAL values depend on the **TOTAL VALUES** set in the **TOTAL x** sub-lists. If those filters are not selected three TOTAL values are displayed which were calculated with the **A**, **C** and **LIN** filters respectively. In the case when those filters are selected the TOTAL value depends on the coefficients of the selected filters. Additionally, the view presented in the **BUFFER VIEW** depends on the selected **MODE**. The USER filters set in the **SOUND METER** mode are taken into account only when **SOUND METER** is active. In the case when the user wants to observe the sound measurements saved in the buffer but the **VIBR. METER** is selected, all three TOTAL values calculated with the **A**, **C** and **LIN** filters are displayed in the **BUFFER VIEW**.

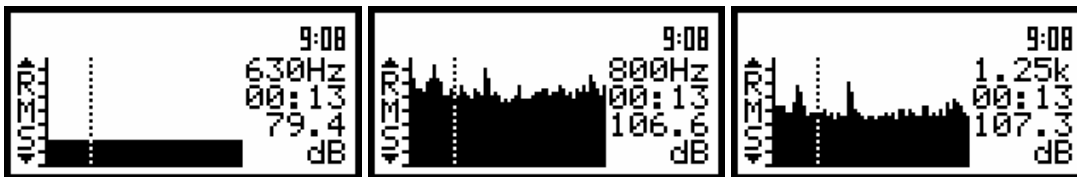


The view of the displays with the selected file from the buffer containing spectra; the TOTAL values and their time histories

*Settings of the meter: DISPLAY SCALE: Logarithmic (path: MENU / DISPLAY / DISPLAY SETUP / DISPLAY SCALE / LOG), TOTAL 1: HP (path: MENU / DISPLAY / DISPLAY SETUP / TOTAL VALUES); TOTAL 2: PR2: Vel1 filter (path: MENU / INPUT / PROFILES SETUP / PROFILE 2); TOTAL 3: PR3: Dil1 filter; (path: MENU / INPUT / PROFILES SETUP / PROFILE 3); SPECTRUM TYPE: VELOCITY (path: MENU / DISPLAY / DISPLAY SETUP / SPECTRUM TYPE)*

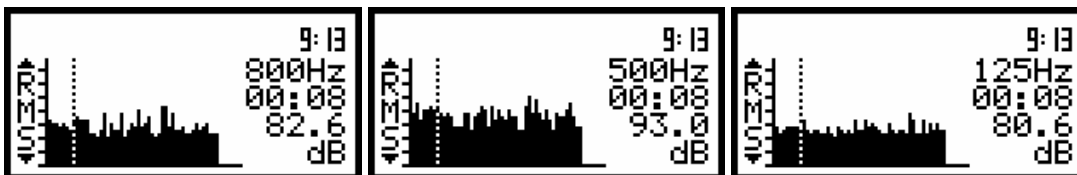
In the case of the vibration measurement results the situation is similar. The values presented in the **BUFFER VIEW**, in the case when the **VIBR. METER** is selected, contain the TOTAL values calculated for the filters selected in the **TOTAL x** sub-lists.

As it was mentioned above, the user can observe the time history for all 1/1 and 1/3 octave filters as well as TOTAL values after pressing the **<ENTER>** push-button on a required filter. In order to observe the time history for another filter (while being in time history window) the user has to press the **<▲>** or **<▼>** push-buttons. After pressing the **<▲>** push-button the time history for the higher frequency filter can be seen.



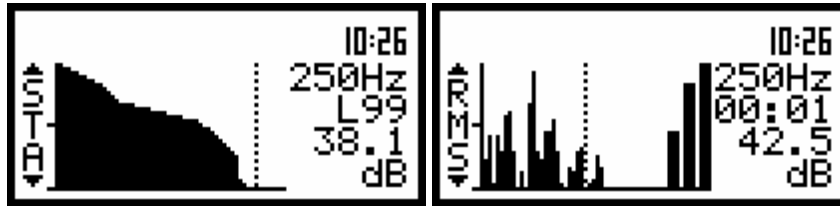
The view of the displays with the selected file from the buffer containing spectra; the change of the time histories of the filters (and the filters) after pressing the **<▲>** push-button

After pressing the **<▼>** push-button the time history for the lower frequency filter can be seen.



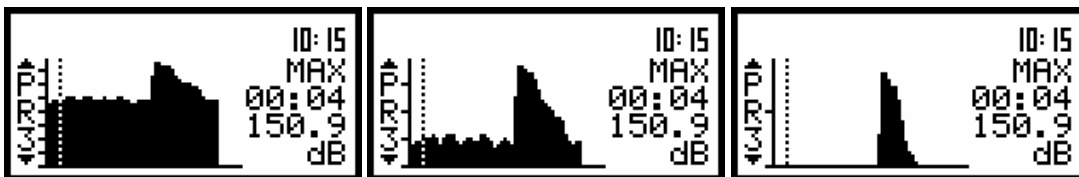
The view of the displays with the selected file from the buffer containing spectra; the change of the time histories of the filters (and the filters) after pressing the **<▼>** push-button

After pressing the <ESC> (or <ENTER>) push-button in time history the display presents the spectra corresponding to the previously seen view.



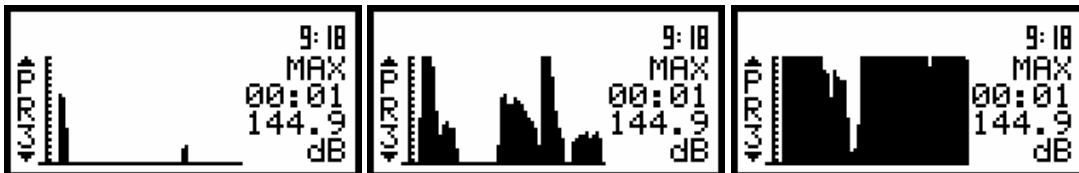
The view of the displays with the selected file from the buffer containing spectra; the change between time history and spectra after pressing <ENTER> push-button for 500 Hz filter

Additionally, during the presentation of the results saved in the buffer, the dynamic of the drawing can be changed. The required value has to be set in the **DYNAMIC** position of the **DISPLAY SCALE** sub-list of the **DISPLAY** list.



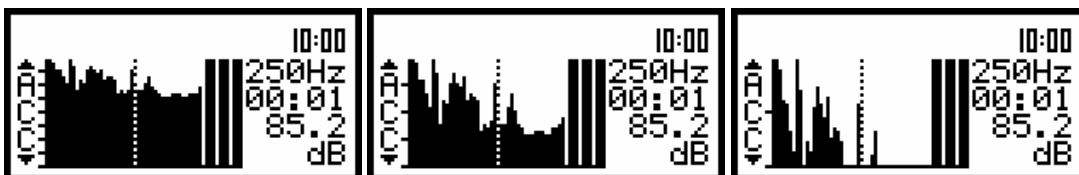
The view of the displays with the selected file from the buffer containing spectra; the time history of the MAX value from the third profile displayed with 80 dB, 40 dB and 20 dB dynamic (set in the DISPLAY SCALE)

Also in this case (the different values of **DYNAMIC**) it is possible to change the relation of the axis (after pressing the <SHIFT> and <^> or <SHIFT> and <v> push-buttons).



The view of the displays with the selected file from the buffer; the change of the axis relation

The change of the axis relation for the time histories of the octave and third octave filters (after pressing the <SHIFT> and <^> or <SHIFT> and <v> push-buttons) and the change of the dynamic of the presentation (the **DISPLAY SCALE** sub-list of the **DISPLAY** list) is also available. Below the time history for 250 Hz filter is presented with the 80 dB, 40 dB and 20 dB dynamic after the change of the axis relation.

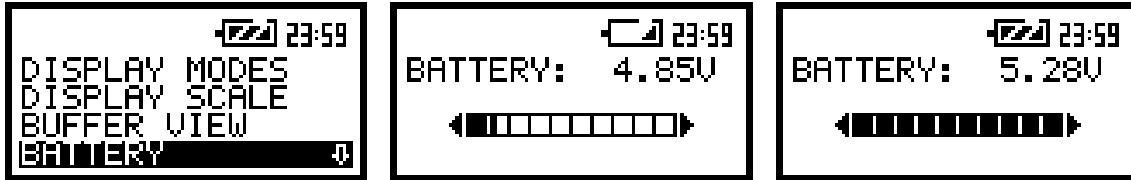


The view of the displays with the selected file from the buffer containing spectra; the time histories for 250 Hz filter displayed with 80 dB, 40 dB and 20 dB dynamic and with the different relation of the axis

The window is closed and the instrument returns to the **BUFFER VIEW** sub-list after pressing the <ESC> push-button the required number of times (this number depends on the displayed result).

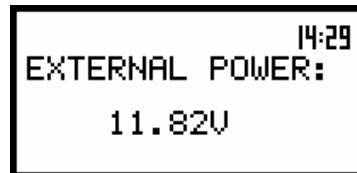
### Checking the state of the internal battery - BATTERY

The **BATTERY** (*path: MENU / DISPLAY / BATTERY*) position enables the user to check the **internal battery condition**. The current battery voltage is displayed together with its approximate state (in the graphical form). The position is opened after pressing the **<ENTER>** push-button on the highlighted (displayed inversely) **BATTERY** text.



The view of the displays 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** (*path: MENU / DISPLAY / 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 display - CONTRAST

The **CONTRAST** (*path: MENU / DISPLAY / CONTRAST*) position enables the user to set the **proper contrast of the display** (by means of the **<◀>**, **<▶>** push-buttons). The position is opened after pressing the **<ENTER>** push-button on the highlighted (displayed inversely) **CONTRAST** text. The user can select 11 different values of this parameter.



The view of the display with the **DISPLAY** list, the **CONTRAST** text highlighted



**Notice:** The new value of the contrast is confirmed after each pressing of the **<◀>** or **<▶>** push-buttons (new value is selected without any confirmation from the **<ENTER>** push-button).

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



The view of the displays with the **CONTRAST** position; the change of the display contrast

### Setting the backlight parameters - **BACKLIGHT**

The **BACKLIGHT** (*path: MENU / DISPLAY / BACKLIGHT*) sub-list enables one to set the parameters of the backlight of the display and the keyboard (using the <◀>, <▶> or <▲>, <▼> push-buttons). The user can switch on the automatic switch off of the backlight after a certain period as well as set its brightness. The sub-list is opened after pressing the <ENTER> push-button on the highlighted (displayed inversely) **BACKLIGHT** text.



The view of the display with the **DISPLAY** list, the **BACKLIGHT** text highlighted

### Automatic switch off of the backlight - **TIMEOUT**

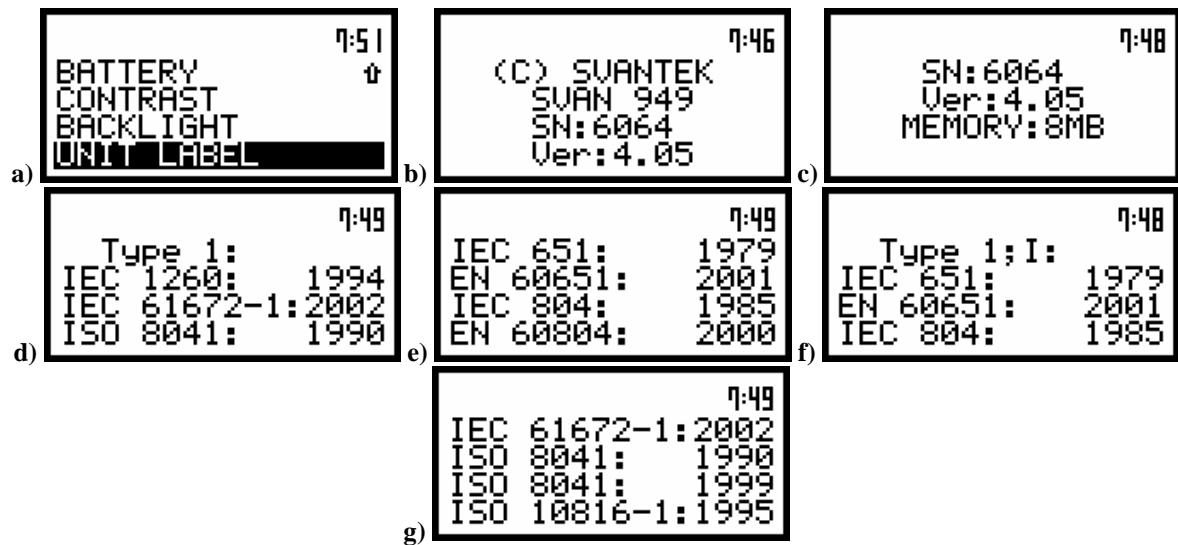
Taking into account the saving of the internal source of the instrument power the backlight should be used relatively rare. It is possible to set the automatic switch off of the backlight. In the case when this option is set, after 30 seconds from pressing **any push-button** the backlight is switched off. If it happened, the first pressing of any push-button would cause the switch on of the backlight. The confirmation of the selection is made by pressing the <ENTER> push-button. The return without taking into account any change is made after pressing the <ESC> push-button.



The view of the displays in the **BACKLIGHT** sub-list; the **TIMEOUT** position active

### Checking specification of the instrument - **UNIT LABEL**

The **UNIT LABEL** position (*path: MENU / DISPLAY / UNIT LABEL*) displays **the type of the instrument, its serial number and the current software version installed in it**. After pressing the <◀>, <▶> or <▲>, <▼> push-buttons the displayed text is scrolled on the display and the user can check the total size of internal memory and 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 displays with the UNIT LABEL position selected (a) and entered (b) and after scrolling with the <^>, <v> or <^>, <v> push-buttons (c), (d), (e), (f) and (g)

## 5.2. SETUP MENU

The **SETUP** (*path: MENU / SETUP*) list contains different sub-lists and positions. Some of them are directly related with sound measurements, some of them depend on the mode of the instrument (sound or vibration meter) and some are related with the settings of the instrument's hardware components. In order to open the **SETUP** list the user has to:

- press the **<MENU>** push-button,
- select from the main list, using the **<▲>**, **<▼>** (or **<◀>**, **<▶>**) push-buttons, the **SETUP** text (highlight it inversely),
- press the **<ENTER>** push-button.



The view of the display in the main list; the **SETUP** text highlighted (displayed inversely)

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

<b>TIMER</b>	position which enables the user to set the Timer function.
<b>RTC</b>	position which enables the user to set the Real Time Clock.
<b>FIELD CORRECTION</b>	position which enables the user to switch on the weighting filter for the measurements performed in the conditions of the diffuse or free field; this position is available only in the case of sound measurements. This position is taken off from the menu in the vibration meter mode.
<b>USER FILTERS</b>	sub-lists which enables the user to view, edit and clear the correcting values for all 1/1 and 1/3 octave filters in the case of sound and vibration measurements.
<b>STAT.LEVELS</b>	(sub-list) position available only in the sound meter mode. It enables the user to select ten statistics results to be saved in a file together with the main results (cf. the description of the files in App. B). This position is taken off from the menu in the vibration meter mode.
<b>SHIFT MODE</b>	sub-list which enables the user to set the operating mode of the <b>&lt;SHIFT&gt;</b> and the <b>&lt;START / STOP&gt;</b> push-buttons.
<b>CLEAR SETUP</b>	position which enables the user to return to the producer's set up, except the coefficients set in the <b>USER FILTERS</b> .
<b>RMS INTEGRATION</b>	position which enables the user to select the way of integration for the <b>RMS</b> measurement in the case of sound and vibration measurements.
<b>REFERENCE LEVEL</b>	position which enables the user to select the reference level for the vibration measurements and which informs the user about the reference level in the sound measurements.
<b>VIBRATION UNITS</b>	position which enables the user to select the vibration units in which the results of the measurements are to be given.
<b>WARNINGS</b>	sub-list which enables the user to switch on or off the warnings which can be displayed during the operation of the instrument.

Pressing the **<SHIFT>** and **<▲>** (or **<SHIFT>** and **<◀>**) push-buttons results in a movement to the first position of the opened list and pressing the **<SHIFT>** and **<▼>** (or **<SHIFT>** and **<▶>**) results in a movement to the last position of the opened list.

In each available position any change is performed by means of the **<◀>**, **<▶>** push-buttons. In order to confirm the selection the **<ENTER>** push-button has to be pressed. After this confirmation the opened window or list is closed. In order to ignore any changes made in the opened window or list the user has to press the **<ESC>** push-button.



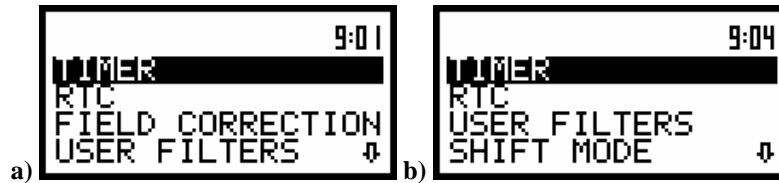
The view of the displays with the *SETUP* list in the measurements of sound



The view of the displays with the *SETUP* list in the measurements of vibration

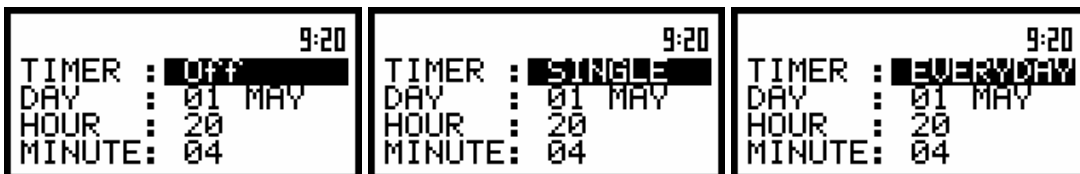
### Programming of the instrument's internal timer - *TIMER*

The **TIMER** (*path: MENU / SETUP / 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. In order to enter this position the user has to select the **TIMER** text in the *SETUP* list (using the <^> or <^> push-buttons) and press the <ENTER>.



The view of the display in the *SETUP* list in sound measurements (a) and in vibration measurements (b), the **TIMER** text highlighted (displayed inversely)

The operation of the **TIMER** (*path: MENU / SETUP / 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 flashing.

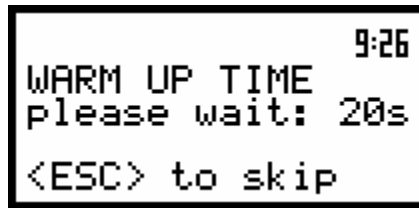


The view of the **TIMER** position



**Notice:** The new value of a parameter is confirmed after each pressing of the <^> or <^> together with the <SHIFT> push-buttons (new value is selected without any confirmation from the <ENTER> push-button).

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



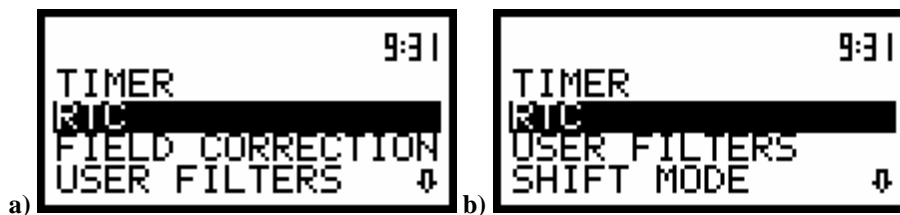
The view of the display after the instrument's self switch on

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.

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

The **RTC** (path: *MENU / SETUP / 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. In order to enter this position the user has to select the **RTC** text in the *SETUP* list, using the **<^>**, **<v>** (or **<◀>**, **<▶>**) push-buttons and press the **<ENTER>**.



The view of the display in the *SETUP* list in sound measurements (a) and in vibration measurements (b), the **RTC** text highlighted (displayed inversely)

The operation of the **RTC** 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 **<^>**, **<v>** push-buttons. The parameter, which value has to be changed, is flashing.



The view of the RTC position



**Notice:** The new value of a parameter is confirmed after each pressing of the **<^>**, **<v>** (new value is selected without any confirmation from the **<ENTER>** push-button).

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

### Setting the conditions for the diffuse field measurements - FIELD CORRECTION

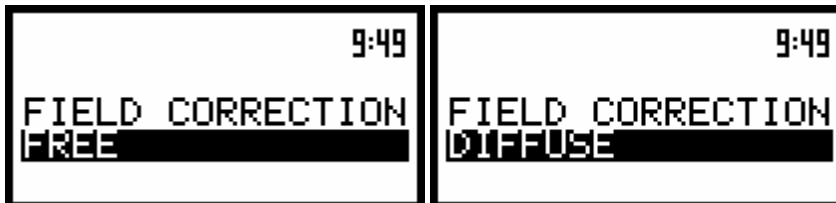
The **FIELD CORRECTION** (*path: MENU / SETUP / FIELD CORRECTION*) position is available only in the case of the sound measurements (in the **MODE** sub-list the **SOUND METER** position is selected). It enables the user to set the proper conditions for making the measurements in the diffuse field. In order to enter this position the user has to select the **FIELD CORRECTION** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons, and press the <ENTER>.



The view of the display in the **SETUP** list in sound measurements, the **FIELD CORRECTION** text highlighted (displayed inversely)

In the **FIELD CORRECTION** position two options are available: **FREE** (for the measurement performed in the free field conditions) and **DIFFUSE** (for the measurement performed in the diffuse field conditions). The microphone supplied with the SVAN 949 instrument (SV 22) is designed for the measurement performed in the free field conditions. In order to make the measurements in the diffuse field conditions the user has to switch on an additional correcting filter. The frequency characteristic of this filter is given in App. C. The **FREE** option selection means that the correcting filter for the diffuse field conditions is switched off. For the measurements performed with the use of the microphones for the diffuse field conditions the option **DIFFUSE** should never be used.

In order to select the filter the user has to press the <◀>, <▶> push-buttons. The position is closed and the instrument returns to the **SETUP** list after pressing the <ENTER> (with the confirmation of a change made in the position) or <ESC> push-button (ignoring a change made in the position).



The displays in the **FIELD CORRECTION** position, the field conditions selection for sound measurements

### Introduction the filter coefficients for 1/3 (1/1) OCTAVE analysis - USER FILTERS

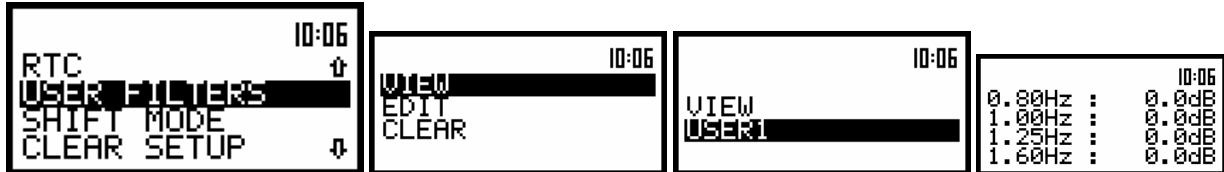
The **USER FILTERS** (*path: MENU / SETUP / USER FILTERS*) sub-list enables the user to introduce the values of the correcting coefficients taken into account in **1/1 OCTAVE** or **1/3 OCTAVE** analysis. The results of the analysis (the **TOTAL** values) can be modified by the introduced factors. In order to enter this sub-list the user has to select the **USER FILTERS** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>. The **USER FILTERS** (sub-list) contains 3 sub-lists: **VIEW**, **EDIT** and **CLEAR**.



The view of the display in the **SETUP** list in sound measurements (a) and in vibration measurements (b), the **USER FILTERS** text highlighted (displayed inversely); the contents of the **USER FILTER** sub-list (c)

### Looking at the coefficients of the user filters set - VIEW

The **VIEW** sub-list enables one to look at the coefficients of the **USER FILTERS** set in the instrument under the name **USER1**, **USER2** or **USER3** or sent to it by means of the interface. In order to enter this sub-list the user has to select the **VIEW** text in the **USER FILTERS** sub-list, using the **<▲>**, **<▼>** (or **<◀>**, **<▶>**) push-buttons and press the **<ENTER>**. The selection of the position in this sub-list is performed by means of the **<◀>**, **<▶>** push-buttons. The sub-list is closed and the instrument returns to the **USER FILTERS** sub-list after pressing the **<ESC>** push-button (ignoring a change made in the position). After pressing the **<ENTER>** push-button on the displayed inversely text the proper sub-list is opened containing the values of the coefficients for all **1/3 OCTAVE** filters is opened. It is not possible to change the values. The selection of the displayed coefficients in the selected filter is performed by means of the **<▲>**, **<▼>** push-buttons.



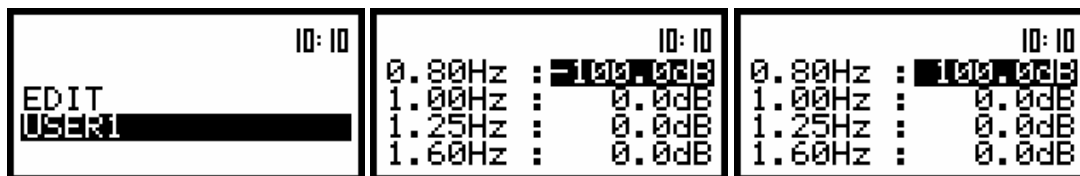
The display's view in the **USER FILTERS** sub-list in vibration measurements, the selection of the position

### Setting the coefficients of the user filters set - EDIT

The **EDIT** sub-list enables the user to select which filters should be edited; the available options are as follows: **USER1**, **USER2**, **USER3** or any other transmitted to the instrument from a PC by means of the interface. In order to enter this sub-list the user has to select the **EDIT** text in the **USER FILTERS** sub-list, using the **<▲>**, **<▼>** (or **<◀>**, **<▶>**) push-buttons and press the **<ENTER>**. The selection of the position in this sub-list is performed by means of the **<◀>**, **<▶>** push-buttons. After pressing the **<ENTER>** push-button when the **USER1** (in the EDIT position) text is displayed inversely, the sub-list containing the values of the coefficients for all **1/3 OCTAVE** filters is opened:

- ❖ **0.80 Hz:** available values of 0.8 Hz centre frequency filter: **-100.0dB ... 100.0dB**
- ❖ **1.00 Hz:** available values of 1Hz centre frequency filter: **-100.0dB ... 100.0dB**
- ❖ ...
- ❖ ...
- ❖ **20.0kHz:** available values of 20 kHz centre frequency filter: **-100.0dB ... 100.0dB**

The selection of the position in the set is performed by means of the **<▲>**, **<▼>** push-buttons. The value is introduced by pressing the **<◀>**, **<▶>** push-buttons. The sub-list is closed and the instrument returns to the **USER FILTERS** sub-list after pressing the **<ENTER>** (with the confirmation of all settings made in the sub-list) or **<ESC>** push-button (ignoring all settings made in the sub-list).



The view of the display in the **EDIT** sub-list, setting the coefficients

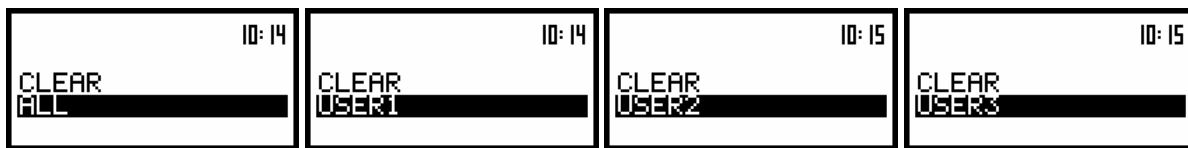
### Clearing the coefficients of the user filters - CLEAR

The **CLEAR** position enables the user to clear the values of the user coefficients of octave or third octave filters. It is possible to clear all sets of coefficients (**ALL**), to clear the first set (**USER1**), to clear the second set (**USER2**), to clear the third one (**USER3**) or any other transmitted to the instrument from a PC by means of the interface.



The view of the displays in the **USER FILTERS**; the **CLEAR** position selected

In order to enter this sub-list the user has to select the **CLEAR** text in the **USER FILTERS** sub-list, using the  $\langle \blacktriangle \rangle$ ,  $\langle \blacktriangledown \rangle$  (or  $\langle \blacktriangleleft \rangle$ ,  $\langle \blacktriangleright \rangle$ ) push-buttons and press the  $\langle \text{ENTER} \rangle$ . The selection of the position in this sub-list is performed by means of the  $\langle \blacktriangleleft \rangle$ ,  $\langle \blacktriangleright \rangle$  push-buttons. The coefficients of a set (or sets) are cleared after the selection of the proper text by means of the  $\langle \blacktriangleleft \rangle$ ,  $\langle \blacktriangleright \rangle$  push-buttons and after pressing the  $\langle \text{ENTER} \rangle$  one. After this the instrument returns to the **USER FILTERS** sub-list. The **CLEAR** sub-list is also closed and the instrument returns to the **USER FILTERS** sub-list after pressing the  $\langle \text{ESC} \rangle$  push-button (without taking any action).



The view of the displays in the **CLEAR** position

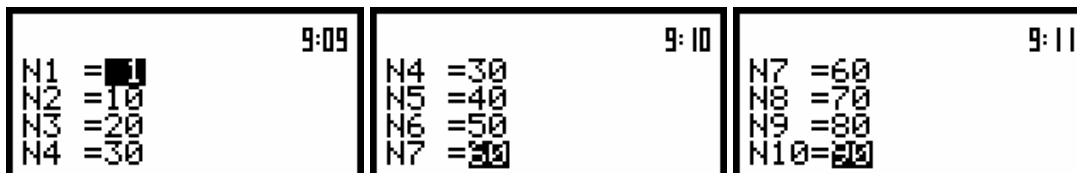
### Selection of statistics levels to be saved in a file - **STAT. LEVELS**

The **STAT. LEVELS** (path: *MENU / SETUP / STAT. LEVELS*) sub-list enables the user to select ten statistics from one hundred calculated in the instrument to be saved in a file together with the main results of the measurements. This sub-list is available only in sound mode; in vibration mode it is taken off from the **SETUP** list.



The view of the display in the **SETUP** list in sound measurements, the **STAT. LEVELS** text highlighted (displayed inversely)

In order to enter this sub-list the user has to select the **STAT. LEVELS** text in the **SETUP** list, using the  $\langle \blacktriangle \rangle$ ,  $\langle \blacktriangledown \rangle$  (or  $\langle \blacktriangleleft \rangle$ ,  $\langle \blacktriangleright \rangle$ ) push-buttons and press the  $\langle \text{ENTER} \rangle$  one.



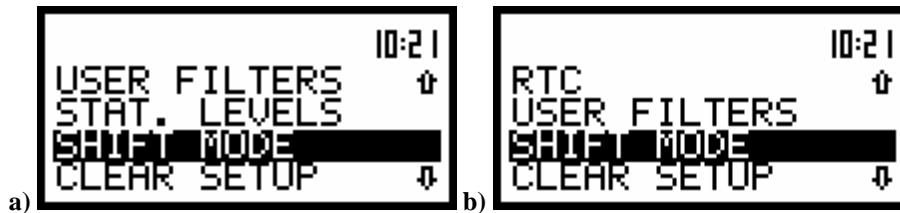
The view of the displays in the **STAT. LEVELS** sub-list

The selection of the position in the sub-list (the proper **N<sub>i</sub>**, where  $i = 1, \dots, 10$ ) is performed by means of the  $\langle \blacktriangle \rangle$ ,  $\langle \blacktriangledown \rangle$  push-buttons. The selection of a number from 1 to 99 in all ten **N<sub>i</sub>** positions is

done by means of the <◀>, <▶> push-buttons (with the step equal to 1) or by means of the <◀>, <▶> push-buttons together with the <SHIFT> one (with the step equal to 10). The sub-list is closed and the instrument returns to the *SETUP* list after pressing the <ENTER> (with the confirmation of all settings made in the sub-list) or <ESC> push-button (ignoring all settings made in the sub-list).

### ***Selection of few push-buttons mode - SHIFT MODE***

The **SHIFT MODE** (*path: MENU / SETUP / SHIFT MODE*) sub-list enables the user to programme the operation mode of the <SHIFT> and <START / STOP> push-buttons.



The view of the display in the *SETUP* list in sound measurements (a) and in vibration measurements (b), the **SHIFT MODE** text highlighted (displayed inversely)

In order to enter this position the user has to select the **SHIFT MODE** text in the *SETUP* list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>. The selection of a parameter in both positions is done by means of the <◀>, <▶> push-buttons and confirmed by the <ENTER> one.

### ***Selection of the working mode of <SHIFT> push-button - SHIFT***

In the **SHIFT** (*path: MENU / SETUP / SHIFT MODE*) 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 push-button with double meaning.

In order to select a desired mode of the <SHIFT> push-button the <◀>, <▶> should be pressed. In order to confirm the selection the <ENTER> push-button has to be pressed. Such pressing closes the sub-list. After pressing the <ESC> push-button the sub-list is also closed but all changes which were made are ignored.



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

### Selection of the working mode of <START / STOP> push-button - ST/SP

In the **ST/SP** (path: MENU / SETUP / SHIFT MODE) position the user can choose between **Normal** and **Inverse**. When the **Normal** text is selected the <START / STOP> push-button operates as it is described in Chapter 2 – the instrument reacts on each of its pressing, starting or stopping the measurements.

When the **Inverse** text is selected the <START / STOP> push-button operates in conjunction or in a sequence with the <SHIFT> one. The measurements are started or stopped after pressing both push-buttons.

In order to select a desired mode of the <START / STOP> push-button the <◀>, <▶> should be pressed. In order to confirm the selection the <ENTER> push-button has to be pressed. Such pressing closes the sub-list. After pressing the <ESC> push-button the sub-list is also closed but all changes which were made are ignored.



The view of the displays in the SHIFT MODE sub-list; the available settings in the ST/SP position

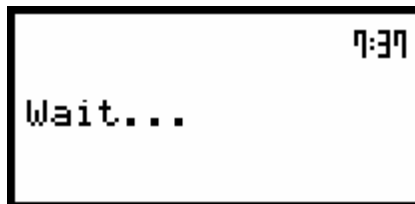
### Return to the factory made settings - CLEAR SETUP

The **CLEAR SETUP** (path: MENU / SETUP / CLEAR SETUP) position enables the user to return to the producer's set up of the instrument. In order to enter this position the user has to select the **CLEAR SETUP** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>. After entering this position 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 view of the display in the SETUP list, the CLEAR SETUP text highlighted (displayed inversely)

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:



The view of the display during the execution of the CLEAR SETUP operation

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



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

The window 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 (RMS) calculations - RMS INTEGRATION

The **RMS INTEGRATION** (*path: MENU / SETUP / RMS INTEGRATION*) position enables the user to select the detector type for the calculations of the **LEQ** function (in the case of sound measurements) or the **RMS** function (in the case of vibration measurements). In order to enter this position the user has to select the **RMS INTEGRATION** text in the *SETUP* list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



The view of the display in the *SETUP* list with the RMS INTEGRATION text highlighted (displayed inversely)

Two options are available: **LINEAR** and **EXPONENTIAL**. The required parameter can be selected by means of the <◀>, <▶> push-buttons. The position is closed and the instrument returns to the *SETUP* list after pressing the <ENTER> (with the confirmation of a change made in the position) or the <ESC> push-button (ignoring a change made in the position).

The expressions used for the **LEQ** or **RMS** calculations are given in Appendix D. When the **LINEAR** option is selected in the case of sound measurements, the value of the **LEQ** and **SEL** function (the SLM case) does not depend on the detector time constant (the results are displayed **without** the indicator of the detectors selected in the profiles).



The view of the displays with the available options of the RMS INTEGRATION position

When the **EXPONENTIAL** option is selected in the case of sound measurements, the value of the **LEQ** and **SEL** function (the SLM case) depends on the detector time constant (the results are displayed **with** the indicator of the detectors selected in the profiles).

### Setting the reference signal in vibration measurements - REFERENCE LEVEL

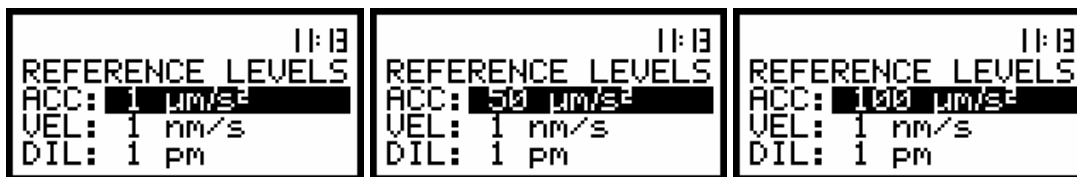
The **REFERENCE LEVEL** (*path: MENU / SETUP / REFERENCE LEVEL*) sub-list enables the user to set the reference level of the vibration signal. The values which are set here are taken into account during the calculations of the measurement results expressed in the logarithmic scale (with the dB as the units). In order to enter this position the user has to select the **REFERENCE LEVEL** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>. The selection of a parameter which level has to be set is done by means of the <▲>, <▼> push-buttons.



The view of the display in the **SETUP** list, the **SHIFT MODE** text highlighted (displayed inversely)

### Setting the reference level of the acceleration signal - ACC

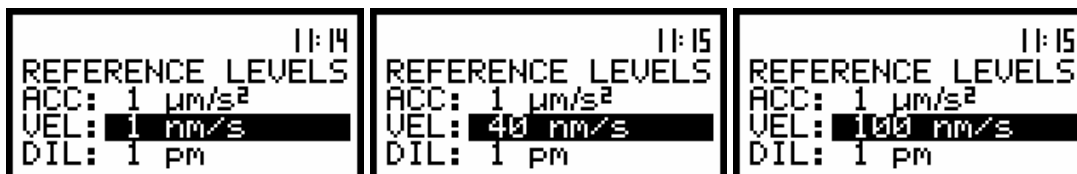
In the **ACC** position the user can set the reference level of the acceleration signal. It is possible to set this level from  $1 \mu\text{m/s}^2$  to  $100 \mu\text{m/s}^2$  with  $1 \mu\text{m/s}^2$  step pressing the <◀>, <▶> push-buttons. The step can be increased to  $10 \mu\text{m/s}^2$  pressing the <SHIFT> with the <◀>, <▶> push-buttons. In order to confirm the setting the <ENTER> push-button has to be pressed. Such pressing closes the sub-list. After pressing the <ESC> push-button the sub-list is also closed but all changes which were made are ignored.



The display's view in the **REFERENCE LEVEL** sub-list; the reference level setting of acceleration signal

### Setting the reference level of the velocity signal - VEL

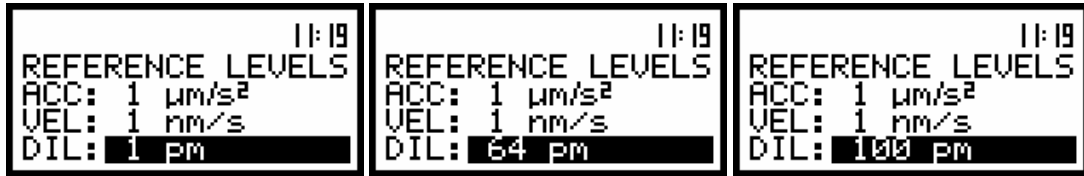
In the **VEL** position the user can set the reference level of the velocity signal. It is possible to set this level from  $1 \text{ nms}^{-1}$  to  $100 \text{ nms}^{-1}$  with  $1 \text{ nms}^{-1}$  step pressing the <◀>, <▶> push-buttons. The step can be increased to  $10 \text{ nms}^{-1}$  pressing the <SHIFT> with the <◀>, <▶> push-buttons. In order to confirm the setting the <ENTER> push-button has to be pressed. Such pressing closes the sub-list. After pressing the <ESC> push-button the sub-list is also closed but all changes which were made are ignored.



The display's view in the **REFERENCE LEVEL** sub-list; the reference level setting of velocity signal

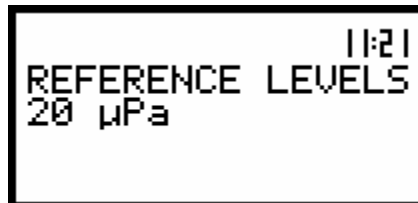
### Setting the reference level of the displacement signal - DIL

In the **DIL** position the user can set the reference level of the displacement signal. It is possible to set this level from 1 pm to 100 pm with 1 pm step pressing the <◀>, <▶> push-buttons. The step can be increased to 10 pm pressing the <SHIFT> with the <◀>, <▶> push-buttons. In order to confirm the setting the <ENTER> push-button has to be pressed. Such pressing closes the sub-list. After pressing the <ESC> push-button the sub-list is also closed but all changes which were made are ignored.



The display's view in the REFERENCE LEVEL sub-list; the reference level setting of displacement signal

In the case of sound measurements the **REFERENCE LEVEL** sub-lists is used only to inform the user that the reference level of the acoustic signal is equal to 20 μPa. After pressing the <ESC> or <ENTER> push-buttons the sub-list is closed.



The view of the display in the REFERENCE LEVEL sub-list; the reference level of the acoustic signal

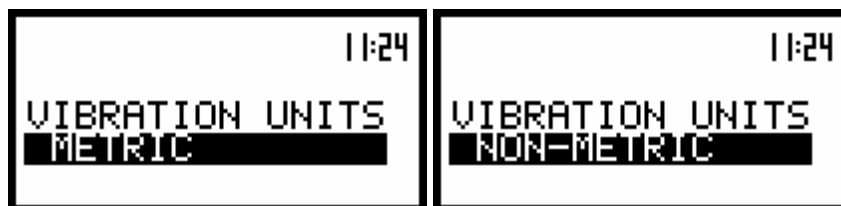
### Selection of the vibration units - VIBRATION UNITS

The **VIBRATION UNITS** (*path: MENU / SETUP / VIBRATION UNITS*) position enables the user to select the units for the vibration measurements. In order to enter this position the user has to select the **VIBRATION UNITS** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



The view of the display in the **SETUP** list, the **VIBRATION UNITS** text highlighted (displayed inversely)

It is possible to select the **METRIC** units (e.g. m/s<sup>2</sup>, m/s, m etc.) or **NON-METRIC** units (e.g. g, ips, mil etc.). The selection is done by means of the <◀>, <▶> push-buttons. In order to confirm the selection the <ENTER> push-button has to be pressed. Such pressing closes the sub-list. After pressing the <ESC> push-button the sub-list is also closed but all changes, which were made, are ignored.



The view of the displays with the available options of the **VIBRATION UNITS** position

### Selection of the warnings - WARNINGS

The **WARNINGS** (*path: MENU / SETUP / WARNINGS*) sub-list enables the user to select the messages which could be displayed during the operation of the instrument. In order to enter this sub-list the user has to select the **WARNINGS** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>. In the internal software version 4.05 this sub-list contains only one position.



The view of the display in the **SETUP** list, the **WARNINGS** text highlighted (displayed inversely)

### Saving the measurement results in a file - RES.NOT SAVE

In order to switch on the displaying of this message the user has to place, by means of the <◀>, <▶> push-buttons, the special character in the warning's position. The position is closed and the instrument returns to the **SETUP** list after pressing the <ENTER> (with the confirmation of a change made in the position) or <ESC> push-button (ignoring a change made in the position).



The view of the displays in the **WARNINGS** sub-list; the selection of the **RES.NOT SAVE** position

When the position is set to be active the special warning can be displayed on the display after pressing the <START / STOP> push-button. It will be happened in a case when the result of the previous measurement was not saved in a file of the instrument. The warning which will appear on the display is presented below.



The view of the displays with the warning that the previous results were not saved and the confirmation

The default value of the **CONTINUE** position is **NO**. After pressing the <ESC> or <ENTER> push-button the instrument returns to the active mode of measurement result's presentation without starting the new measurement process. Using the <◀>, <▶> push-buttons one can change the value of the **CONTINUE** position to **YES**. To confirm the change the <ENTER> should be pressed, after which the instrument returns to the active mode of measurement result's presentation starting the new measurement process.

### 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 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. The capacity of available memory is equal to 8 MB in the standard version, expandable up to 32 MB.*

#### **Saving files**

In the case of the SVAN 949 instrument there are six different types of files containing data:

- from **Sound Level Meter** mode;
- from **Vibration Level Meter** mode;
- from **1/1 OCTAVE** analysis;
- from **1/3 OCTAVE** analysis;
- from **FFT** 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**, **VLM**, **1/1 OCTAVE**, **1/3 OCTAVE** or **FFT** analysis, buffer) and on the setting of **SAVE STAT.** position from **SAVE OPTIONS** sub-list of 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 header of the **FFT** analysis performed in the selected band;
- the **FFT** analysis results;
- the statistics header;
- the results of statistical analysis;
- the header of the statistical analysis performed in **1/1 OCTAVE** or **1/3 OCTAVE** analysis;
- the results of the statistical analysis performed in **1/1 OCTAVE** or **1/3 OCTAVE** 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

Storing the sound measurement results as files in the instrument's FLASH DISC can be done by means of the *FILE* list. In order to open this list the user has to:

- press the <MENU> push-button,
- select from the main list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons, the **FILE** text (highlight it inversely),
- press the <ENTER> push-button.



The view of the display in the main list; the **FILE** text highlighted (displayed inversely)

The *FILE* list contains the following items:

- SAVE** enables one to save the measurement results as a file in the instrument memory;
- SAVE OPTIONS** enables one to set the options of the measurement result savings;
- LOAD** enables one to load to the working space of the instrument's memory the measurement results saved in a file;
- DELETE** enables one to delete a selected file from the instrument's memory;
- DELETE ALL** enables one to delete all files from the instrument's memory;
- DEFRAGMENTATION** enables one to recover the memory which was used by the deleting files;
- CLEAR BUFFER** enables one to delete all files from the buffer of the instrument;
- CATALOGUE** enables one to overview the catalogue of the files saved in the instrument's memory;
- FREE SPACE** informs the user about the capacity of the instrument's memory still available for storing the measurement results.

Pressing the <SHIFT> and <▲> (or <SHIFT> and <◀>) results in a movement to the first position of the opened list and pressing the <SHIFT> and <▼> (or <SHIFT> and <▶>) results in a movement to the last position of the opened list.

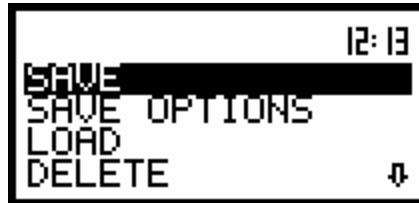


The view of the displays with the *FILE* list of the instrument

In each available position any change is performed by means of the <◀>, <▶> push-buttons. In order to confirm the selection the <ENTER> push-button has to be pressed. After this confirmation the opened window or list is closed. In order to ignore any changes made in the opened window or list the user has to press the <ESC> push-button.

### Saving files in the instrument's memory - SAVE and SAVE NEXT

The **SAVE** (*path: MENU / FILE / 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). In order to enter this position the user has to select the **SAVE** text in the *FILE* list, using the <▲> (or <◀>) push-button. After the selection the <ENTER> push-button must be pressed. 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 displays in the *FILE* sub-list with the **SAVE** text highlighted (displayed inversely)

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 return to the *FILE* sub-list is possible after pressing the <ESC> push-button.



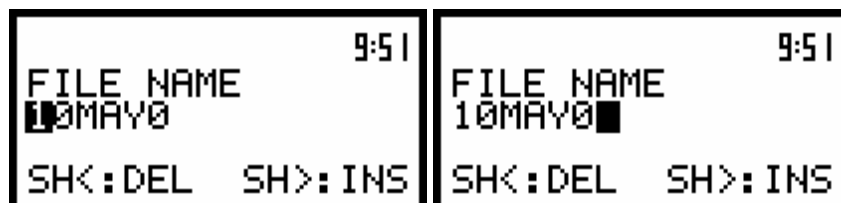
The view of the displays with the **SAVE** position opened

The name of the file, in which the measurements or the analysis results are to be saved, is displayed under the **SAVE** or **SAVE NEXT** text. The default name for a file is displayed 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 <◀>, <▶>, <▲>, <▼> and <SHIFT> push-buttons are used for editing the name which can not exceed 8 characters.



The view of the displays 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 available ASCII characters can be changed using the <▲>, <▼> push-buttons. The

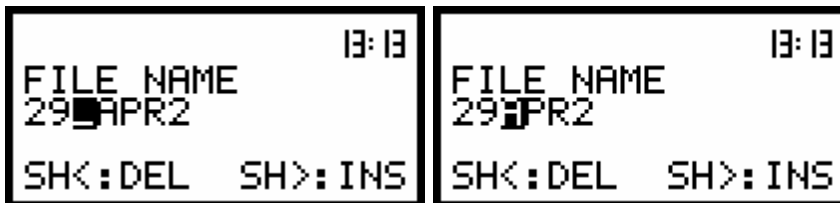
subsequent big letters, digits, space and underline appear on the display in the inversely displayed position after each pressing of the mentioned above push-buttons.

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



The view of the displays in the FILE NAME edition after pressing the **<SHIFT>** and **<▶>** push-buttons

The character, which is displayed inversely, is deleted from the edited name (the **Del** operation is executed) when the **<SHIFT>** and **<◀>** push-buttons are pressed.



The view of the displays in the FILE NAME edition after pressing the **<SHIFT>** and **<◀>** push-buttons

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 instrument waits then for a reaction of the user (any push-button should be pressed except the **<SHIFT>** one). All changes introduced to the file name during the edition are ignored after pressing the **<ESC>** push-button. This pressing causes the return to the list from which the **SAVE** option was entered.

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 0 to N, when the only limitation of the N value is the length of the file name, which cannot be longer than 8 characters.



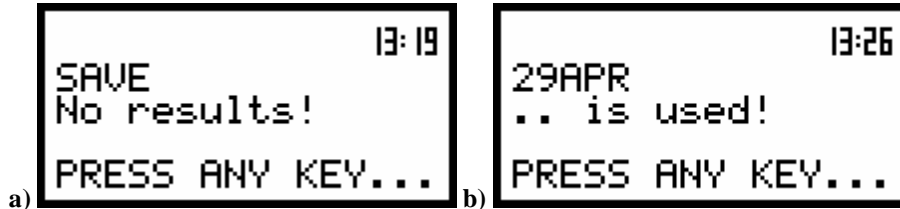
The view of the displays in the simplified edition of the file name

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. The message with the changing letters from big to small and small to big is displayed on the display in this case (see below).



The view of the displays with the message stating the reason for unfeasibility of the required operation

The **SAVE** position is displayed once more after about 3 seconds. The presented below message (Fig. a) 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 operation can not be done also in a case when the file of the selected name already exists in the instrument's memory (Fig. b). 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 displays after the **SAVE** operation when the results for storing are not available (a) and the file with the selected name already exists in the instrument's memory (b)

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).



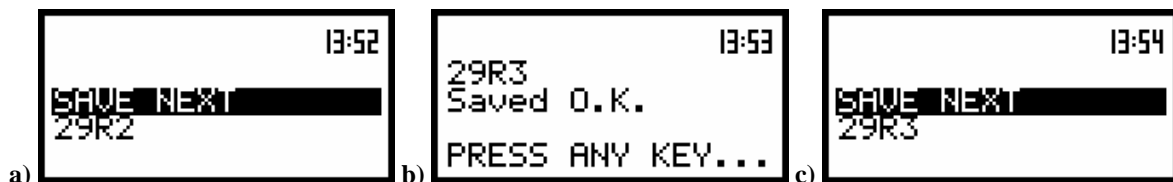
**Notice:** In the **SAVE NEXT** function it is possible to save a file (pressing the **<ENTER>** push-button) skipping the full or simplified edition of the file's name.

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



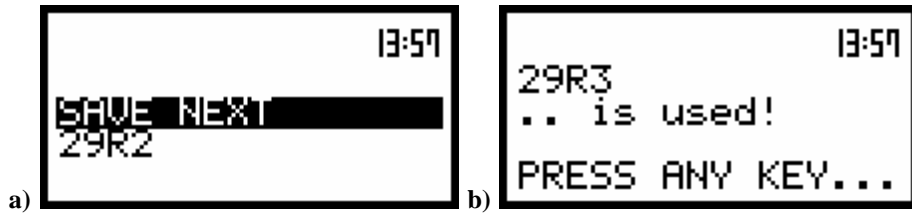
The view of the display during the execution of the **SAVE** operation

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 displays 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 displays 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

The **SAVE OPTIONS** (path: MENU / FILE / 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 (selected using the <^>, <v> (or <^>, <v>) push-buttons). The return to the **FILE** list is possible after pressing the <ESC> push-button.

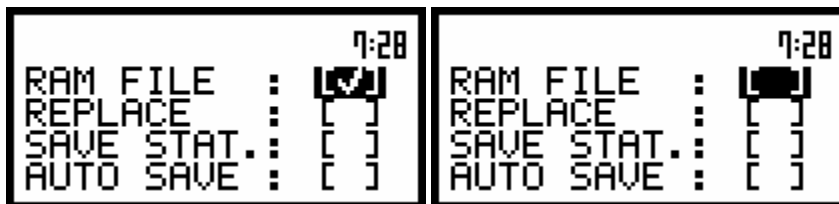


The view of the displays in the **FILE** sub-list with the **SAVE OPTIONS** text highlighted (displayed inversely)

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, valid only for sound measurements) and to save automatically the results of the measurements (the **AUTO SAVE** position). The position of the sub-list is changed after pressing the <^>, <v> push-buttons. In order to confirm the selection the <ENTER> push-button has to be pressed. Such pressing closes also the opened sub-list.

### Saving of the files to the RAM memory - RAM FILE

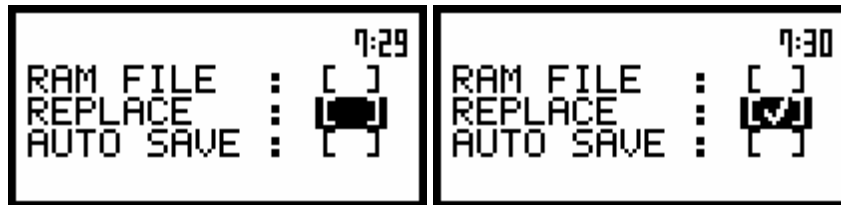
The **RAM FILE** position enables the user to save the results of the measurement in the special file at RAM memory (the name of the file is defined as a "RAMfile"). The activation or deactivation of the **RAM FILE** position is done by pressing the <^>, <v> push-buttons. This option is useful when remote reading is necessary; available values: [v] or [ ].



The displays during the execution of the **SAVE OPTIONS** - the selection of the **RAM FILE** parameters

### Replacement of the existing files by the new ones - REPLACE

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 displays during the execution of the SAVE OPTIONS - the selection of the REPLACE parameters

After pressing the <ENTER> push-button the selections made in any position of the sub-list (in particular also in the **REPLACE** position) are confirmed and the sub-list is closed. In the case when the **AUTO SAVE** option was active ([√]), after pressing the <ENTER> push-button the **FILE NAME** window is opened for editing the names for **AUTO SAVE** files.

The **SAVE OPTION** sub-list is closed ignoring all settings made in it after pressing the <ESC> push-button.

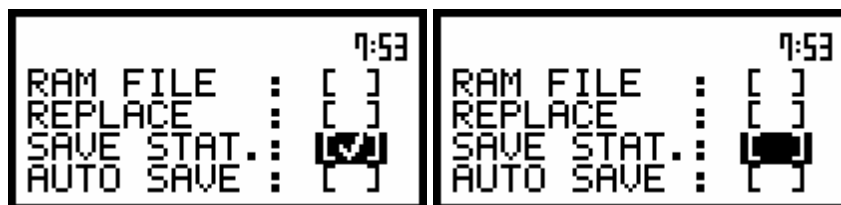
The next position from the **SAVE OPTIONS** sub-list becomes available after pressing the <▼> push-button.

### Controlling of the measurement statistics savings - SAVE STAT.

The **SAVE STAT.** position is used to set self saving, together with the sound measurement results, the statistics of the measurements ([√]) or to switch off ([ ]) this possibility. Together with the sound measurements 100-class statistics is performed (the values named from **L01** to **L99**). The statistics are not calculated for the vibration measurements. The activation or deactivation of the **SAVE STAT.** position is done by pressing the <◀>, <▶> push-buttons.



**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 displays during the execution of the SAVE OPTIONS – the selection of the SAVE STAT. parameters

After pressing the <ENTER> push-button the selections made in any position of the sub-list (in particular also in the **SAVE STAT.** position) are confirmed and the sub-list is closed.

**Controlling of the measurement results savings - AUTO SAVE**

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 waist too much memory of the instruments when the self saving is not necessary.



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

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. This window is not accessed in the case when the instrument is performing the measurements or when they are paused. In such a case the message with the changing letters is displayed (see below) and the instrument returns to the list from which the **SAVE OPTION** sub-list was called.



The view of the displays with the message stating the reason for unfeasibility of the required operation

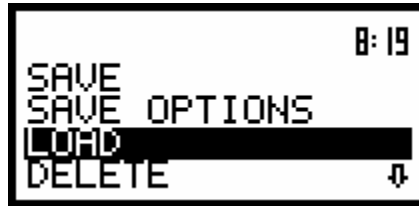
When the **AUTO SAVE** option is not active ([ ]), after pressing the <ENTER> push-button the instrument returns to the **FILE** list. The name of the **AUTO SAVE** files is up to eight characters long starting with the special character @.



The view of the displays after entering the FILE NAME edition mode for the files saved with the AUTO SAVE option active (after pressing the <ENTER> push-button in the SAVE OPTIONS sub-list, the AUTO SAVE switched on)

**Loading the files with the measurement results - LOAD**

The **LOAD** (path: MENU / FILE / LOAD) position is used for loading data file from the FLASH DISC (e.g. for the verification or comparison). The position is opened after pressing the <ENTER> push-button when the **LOAD** text in the **FILE** list is displayed inversely (selected using the <▲>, <▼> (or <◀>, <▶>) push-buttons). The return to the **FILE** list is possible after pressing the <ESC> push-button.

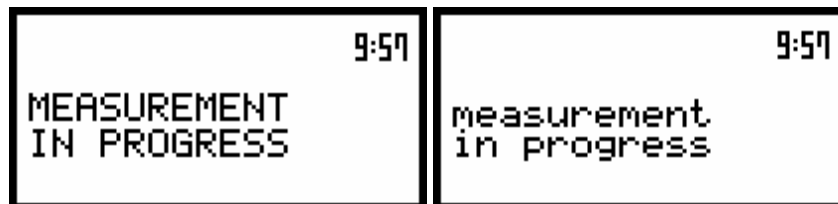


The view of the displays in the *FILE* sub-list with the **LOAD** text highlighted (displayed inversely)



**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.

After pressing the **<ENTER>** push-button the instrument checks its current state. In the case when the measurements are performed the file loading is impossible. In such case the message with the changing letters is displayed (see below) and the instrument returns after few seconds to the list from which the **LOAD** position was called.



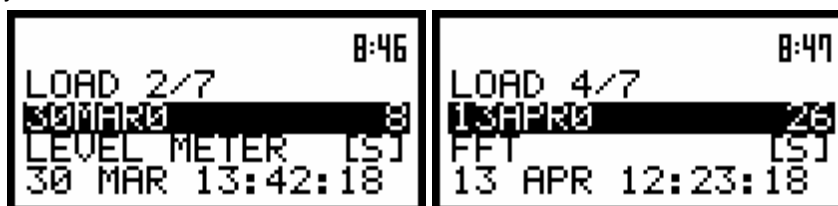
The view of the displays with the message stating the reason for unfeasibility of the required operation

In the case when the instrument memory is empty (no file is stored), after entering the **LOAD** position the **NO FILES** text is displayed and the instrument waits for the reaction of the user. The user should press then the **<ESC>**, **<ENTER>** or **<START / STOP>** push-button.



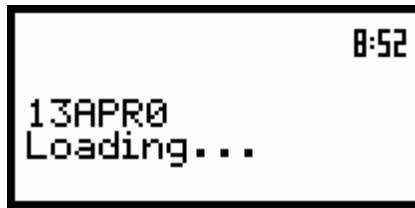
The view of the displays during the execution of the **LOAD** operation

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). If the file contains the results from the buffer, the number of the buffer is displayed at the right end of this line. The type of the current file (**LEVEL METER**, **1/1 OCTAVE**, **1/3 OCTAVE** etc.) is given in the third line. Date and 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. After pressing the **<◀>** with **<SHIFT>** push-button the first file is available and after pressing the **<▶>** with **<SHIFT>** push-button - the last one is displayed.



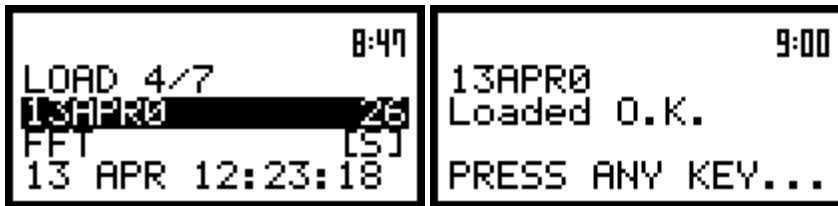
The view of the displays during the overview of the file list

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.:



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

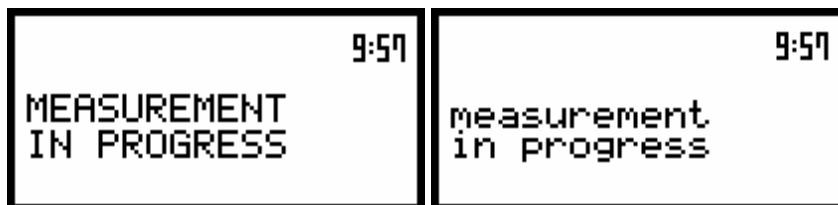
The next message is displayed after successful end of loading operation. The instrument waits for the reaction of the user (any push-button should be pressed except the <SHIFT> one) and after pressing a push-button it returns to the *FILE* list.



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

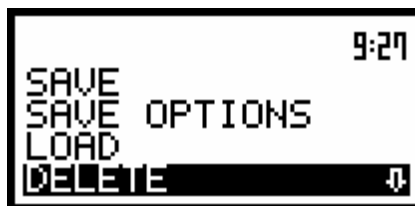
### Removing a file with the measurement results from memory - DELETE

The **DELETE** (*path: MENU / FILE / DELETE*) is used to remove a file from memory. After pressing the <ENTER> push-button the instrument checks its current state. In the case when the measurements are performed, the **DELETE** position entering is impossible. In such case the message with the changing letters is displayed (see below) and the instrument returns after few seconds to the list from which the **DELETE** was called.



The view of the displays with the message stating the reason for unfeasibility of the required operation

In the case when the instrument memory is empty (no file is stored), after entering the **DELETE** position the **NO FILES** text is displayed and the instrument waits for the reaction of the user. The user should press then the <ESC>, <ENTER> or <START / STOP> push-button.



The view of the displays in the *FILE* sub-list with the DELETE text highlighted (displayed inversely)

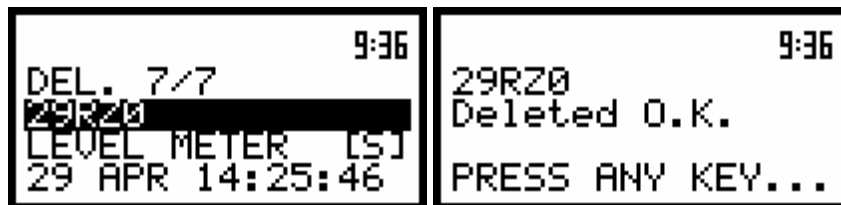
The same data about the existing in the instrument files as in the **LOAD** position are displayed on the display after successful opening the **DELETE** position (pressing the <ENTER> push-button). In the

consecutive lines of the display the current file number, the total number of the files, the file name, file type, date and time of registration are presented. The change of the current file with the unit step can be done pressing the <◀>, <▶> push-buttons. After pressing the <◀> with <SHIFT> push-button the first file is available and after pressing the <▶> with <SHIFT> push-button - the last one is displayed. The return to the *FILE* list is possible after pressing the <ESC> push-button.



The view of the displays during the execution of the DELETED 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 displays after the execution of the DELETED operation

### Removing all files with measurement results from memory - DELETED ALL

The **DELETED ALL** (path: MENU / FILE / DELETED ALL) position is used to remove all files from memory. In order to enter this position the user has to select the **DELETED ALL** text in the *FILE* list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



The view of the displays in the *FILE* sub-list with the DELETED ALL text highlighted (displayed inversely)

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 return to the *FILE* list is possible after pressing the <ESC> push-button. After pressing the <ENTER> push-button the instrument checks its current state. In the case when the measurements are performed, the execution of the **DELETED ALL** operation is not possible. In such case the message with the changing letters is displayed (see below) and the instrument returns after few seconds to the list from which the **DELETED ALL** position was called.



The view of the displays with the message stating the reason for unfeasibility of the required operation

The <ENTER> push-button pressing, when the YES option is selected and the instrument is not performing the measurements, deletes all existing files. In this case the following text is displayed (see below Fig. a) where 35 denotes the number of blocks to be deleted. In this time the instrument recovers the memory which was used by saved files and then clears it.



The view of the display during the execution of the DELETE ALL operation (a) and after the execution (b)

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.

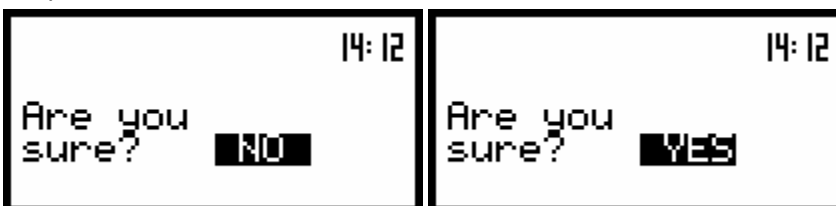
### Memory merging - DEFRAGMENTATION

The DEFRAGMENTATION (path: MENU / FILE / DEFREGMENTATION) position is used to merge the blocks of the memory which were released after the delete operation. In order to enter this position the user has to select the DEFRAGMENTATION text in the FILE list, using the <^>, <v> (or <◀>, <▶>) push-buttons and press the <ENTER>.



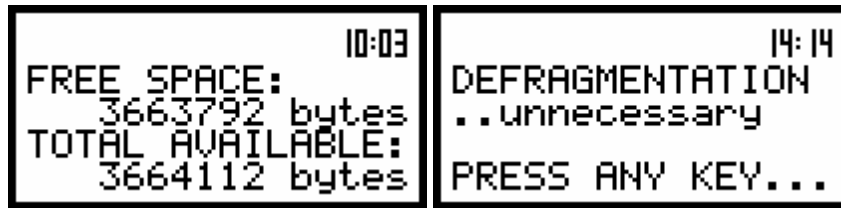
The view of the displays in the FILE sub-list with the DEFRAGMENTATION text highlighted

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 return to the FILE list is possible after pressing the <ESC> push-button.



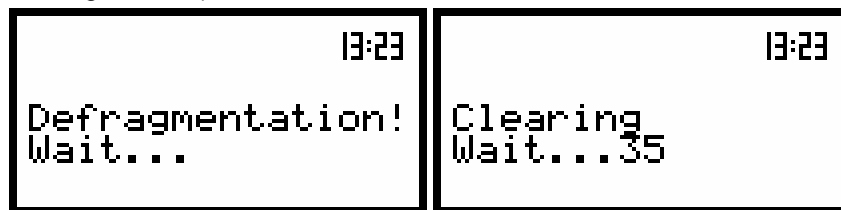
The view of the displays before the execution of the DEFRAGMENTATION operation

The **<ENTER>** push-button pressing, when the **YES** option is selected and the instrument is not performing the measurements, merges the memory. The presented below message is displayed in the case when the operation is not required. 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 operation is not executed in a case when **FREE SPACE** is equal to **TOTAL AVAILABLE**.



The view of the display in the case when the **DEFRAGMENTATION** operation is not required

In the case when the **DEFRAGMENTATION** operation is performed, the following texts are displayed (see below Fig. a and b)



The view of the displays during the execution of the **DEFRAGMENTATION** operation

In this time the instrument recovers the memory which was used by the deleted files, clears it and merges in one block. The presented below message is displayed after successful memory merging (see Fig. c). 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 result of the **DEFRAGMENTATION** operation is visible in Fig. c, while the state of the memory before the execution of this operation is given in Fig. a.



The view of the displays with the state of the file's memory (a), after the execution of the **DEFRAGMENTATION** operation (b) and the state of the memory after the execution of the operation (c)

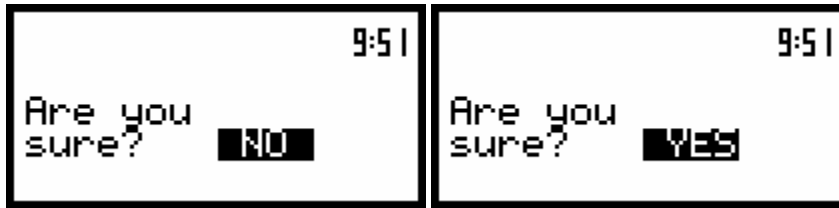
### Removing all files with results from buffer's memory - **CLEAR BUFFER**

The **CLEAR BUFFER** (path: **MENU / FILE / 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. In order to enter this position the user has to select the **CLEAR BUFFER** text in the **FILE** list, using the **<▲>**, **<▼>** (or **<◀>**, **<▶>**) push-buttons and press the **<ENTER>**.



The view of the displays in the **FILE** sub-list with the **CLEAR BUFFER** text highlighted (displayed inversely)

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 return to the *FILE* list is possible after pressing the <ESC> push-button.



The view of the displays during the execution of the CLEAR BUFFER operation

After pressing the <ENTER> push-button the instrument checks its current state. In the case when the measurements are performed, the execution of the **CLEAR BUFFER** operation is not possible. In such case the message with the changing letters is displayed and the instrument returns after few seconds to the list from which the **CLEAR BUFFER** position was called. The instrument returns to the *FILE* list after the successful execution of the **CLEAR BUFFER** operation.

### Checking the contents of the memory - CATALOGUE

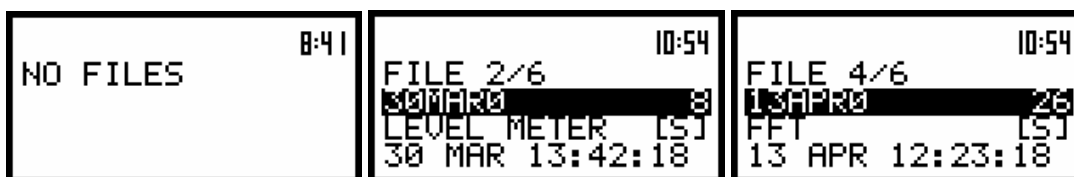
The **CATALOGUE** position is used for checking the contents of the memory (the list of the files). In order to enter this position the user has to select the **CATALOGUE** text in the *FILE* list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



The view of the displays in the *FILE* sub-list with the CATALOGUE text highlighted (displayed inversely)

In the case when the instrument memory is empty (no file is stored), after entering the **CATALOGUE** position the **NO FILES** text is displayed and the instrument waits for the reaction of the user. The user should press then the <ESC>, <ENTER> or <START / STOP> push-button.

The same data about the existing in the instrument files as in the **LOAD** position are displayed on the display after opening **CATALOGUE** position. In the consecutive lines of the display the current file number, the total number of the files, the file name, file type, date and time of registration are presented. The change of the current file with the unit step can be done pressing the <◀>, <▶> push-buttons. After pressing the <◀> with <SHIFT> push-button the first file is available and after pressing the <▶> with <SHIFT> push-button - the last one is displayed. The return to the *FILE* list is possible after pressing the <ESC> or <ENTER> push-button.



The view of the displays during the execution of the CATALOGUE operation

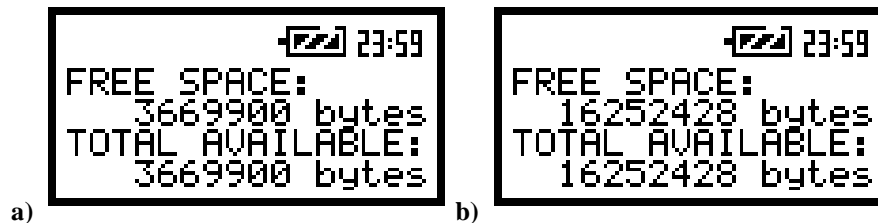
### Checking the free space in the memory - FREE SPACE

The **FREE SPACE** (path: *MENU / FILE / FREE SPACE*) position is used to read out the free space in the FLASH DISC memory of the instrument. In order to enter this position the user has to select the **FREE SPACE** text in the *FILE* list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



The view of the displays in the *FILE* sub-list with the **FREE SPACE** text highlighted (displayed inversely)

The number of available space depends on the memory option installed in the unit and the history of the measurements. The position is closed and the instrument returns to the *FILE* list after pressing the <ENTER>, or <ESC> push-buttons or after starting / continuation the measurements (the <PROCEED> or <START / STOP> push-buttons).



The view of the displays during the execution of the **FREE SPACE** operation in the units with 8 MB (a) and 32 MB of internal memory (b)

### Operations in 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 3.4 Mbytes (for the unit with 8 MB of internal memory). The buffer operation is strongly dependent on the operation mode of the instrument (the selected 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 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. If the value set in this position is equal to 1 sec, thus for three profile results logging the buffer is fulfilled after 168 hours (or 7 days) of the continuous work. If the results from only one profile are saved the buffer will be filled after 500 hours (21 days) of work!

#### EXAMPLE 1.

Assuming that the following settings are selected:

**MEASURE SETUP** sub-list **INT. TIME: 10 m,**  
**REP. CYCLE: 1,**  
**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) and after one measurement cycle (the value set in the **REP. CYCLE** 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,**  
**REP. CYCLE: 1,**  
**BUF. STEP: 7 s,**  
**PROFILES SETUP** sub-list **PROFILE 1: BUFFER: PEAK,**  
**PROFILE 2: BUFFER: RMS,**  
**PROFILE 3: BUFFER: None.**

Then after the end of the measurement the current file in the buffer will contain 8 **PEAK** values (for each 7-seconds period set in the **BUF. STEP** position) from the profile 1 and 8 **RMS** values from the profile 2.



**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)!*

2. In **1/1 OCTAVE** or **1/3 OCTAVE** analysis one selected result from each of three profiles together with the spectra can be logged in the current file of the buffer with the step selected in the **BUF. STEP** position.

**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: <any value>,**  
**REP. CYCLE: <any value>,**  
**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 [√].**

## 5.4. PRINTING REPORTS

The printed reports of the sound or vibration measurement results in the predefined format can be obtained by means of the **REPORT** list. In order to open the **REPORT** list the user has to:

- press the **<MENU>** push-button,
- select from the main list, using the **<▲>**, **<▼>** (or **<◀>**, **<▶>**) push-buttons, the **REPORT** text (highlight it inversely),
- press the **<ENTER>** push-button.

Pressing the **<SHIFT>** and **<▲>** (or **<SHIFT>** and **<▶>**) results in a movement to the first position of the opened list and pressing the **<SHIFT>** and **<▼>** (or **<SHIFT>** and **<▶>**) results in a movement to the last position of the opened list.



The view of the display in the main list; the **REPORT** text highlighted (displayed inversely)

In order to obtain the report the user has to **connect the instrument to the USB port** of a PC using the proper cable. Measurement results can be stored in large (8 MB or 32 MB as an option), non-volatile memory and easy **downloaded to any PC using USB interface and SvanPC software**.



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

The **REPORT** list contains the following elements:

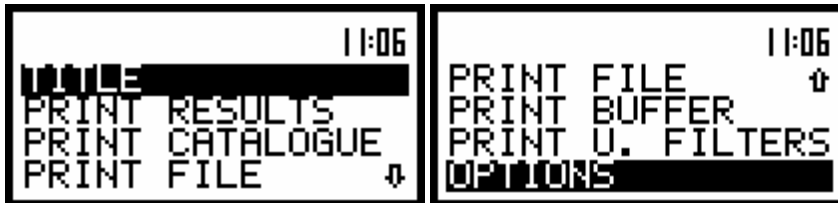
- |                         |  |
|-------------------------|--|
| <b>TITLE</b>            | which enables the user to give the header to the printed report;   |
| <b>PRINT RESULTS</b>    | which enables the user to send the measurement results to a PC using SvanPC software and USB interface;  |
| <b>PRINT CATALOGUE</b>  | which enables the user to send the catalogue of the files to a PC using SvanPC software and USB interface;   |
| <b>PRINT STATISTICS</b> | which enables the user to send the statistics of the sound measurement results to a PC using SvanPC software and USB interface; this position is not available in the case when <b>VIBR. METER</b> is selected in the <b>MODE</b> sub-list (the case of vibration measurements); |
| <b>PRINT FILE</b>       | which enables the user to send the contents of the selected file to a PC using SvanPC software and USB interface;  |
| <b>PRINT BUFFER</b>     | which enables the user to send the contents of the selected file from the buffer to a PC using SvanPC software and USB interface;  |
| <b>PRINT U.FILTERS</b>  | which enables the user to send the values of the user filters to a PC using SvanPC software and USB interface;   |
| <b>OPTIONS</b>          | which enables the user to determine the options of the report.   |



The view of the displays in the **REPORT** list in **SOUND METER**



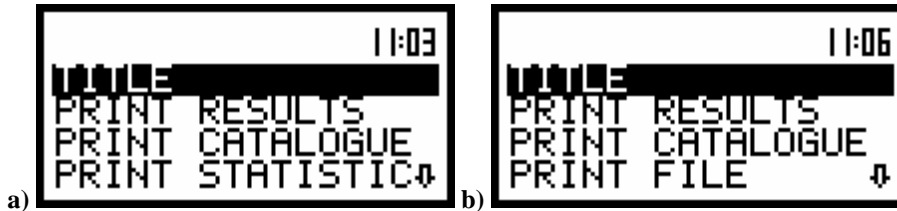
**Notice:** All reports are printed in the character format using ASCII set.



The view of the displays in the *REPORT* list in VIBR. METER

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

The **TITLE** (path: MENU / REPORT / TITLE) position enables the user to edit the text added to the file and to the report to be send out. This operation is performed in the same way as it was described in the case of the **FILE NAME** window. In order to enter this position the user has to select the **TITLE** text in the *REPORT* list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



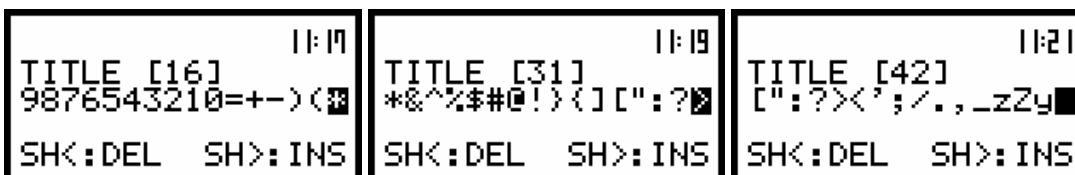
The view of the display in the *REPORT* list, the **TITLE** text highlighted in SLM (a) and VLM (b)

The text edition is made using the <▲>, <▼>, <◀>, <▶> and <SHIFT> push-buttons. The <◀>, <▶> push-buttons are used for changing the position of the edited character. The number (counted from the beginning of the text) of the edited character is displayed in the first line of the display, in the brackets. The text is limited to 128 characters.



The view of the displays in the text edition of the report's header

The <▲>, <▼> push-buttons are used for the selection of the ASCII characters. Digits, small and big letters as well as special characters are available (cf. the view of the displays below). Small and big letters are placed one after another. Pressing <SHIFT> and <◀> push-buttons causes that the highlighted character is erased from the text (**DEL** function). Pressing the <SHIFT> and <▶> causes that the whole text is shifted one position to the right (**INSERT** function).

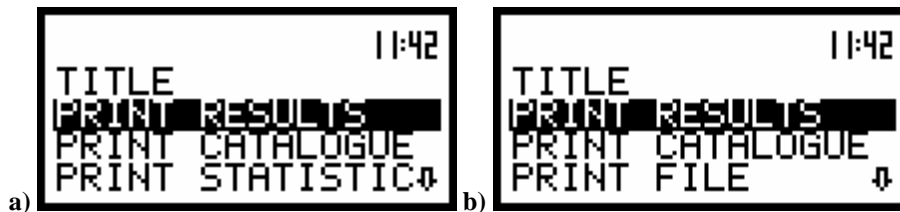


The view of the displays in the text edition of the report's header

The position is closed and the instrument returns to the **REPORT** list after pressing the **<ENTER>** or **<ESC>** push-button. In the first case the edited text is saved and will be added to the sent out reports. In the latter case newly introduced text or the amendments made in the old one are ignored.

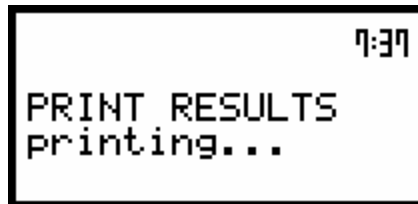
### Printing of the measurement results - PRINT RESULTS

The **PRINT RESULTS** (*path: MENU / REPORT / PRINT RESULTS*) position enables the user to send out the report to a PC using the SvanPC software and the USB interface. In order to enter this position the user has to select the **PRINT RESULT** text in the **REPORT** list, using the **<▲>**, **<▼>** (or **<◀>**, **<▶>**) push-buttons and press the **<ENTER>**.



The view of the display in the **REPORT** list, the **PRINT RESULT** text highlighted in SLM (a) and VLM (b)

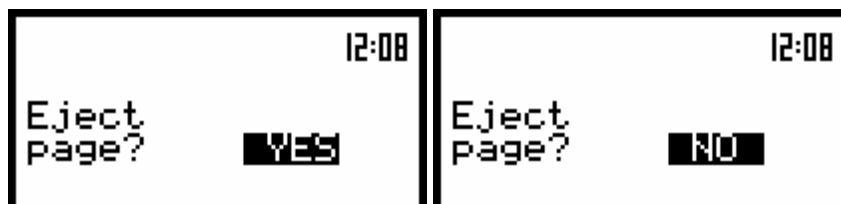
After pressing the **<ENTER>** push-button, in the case when a measurement was already performed and a result is available, the following message is displayed:



The view of the display during the execution of the **PRINT RESULTS** operation

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

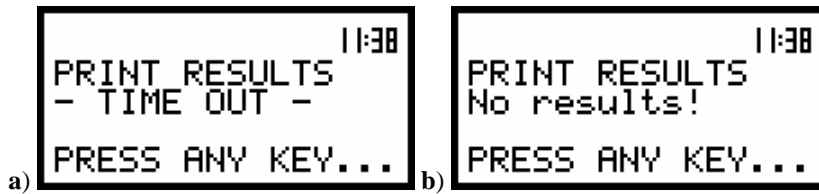
The following message is displayed on the display after the data transfer, if the **Prompt** parameter was selected in the **EJECT P.** position of the **OPTIONS** (*path: MENU / REPORT / OPTIONS*) sub-list. The user has to answer in this case if the Line Feed should be also sent out. The change of the 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 addition of the Line Feed to the sent out results.



The view of the displays after sending out with the confirmation request of the Line Feed addition

The similar message is displayed after sending out 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**, **PRINT U. FILTERS** and **PRINT BUFFER**).

The message about the time limit is displayed in the case when the PC 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> one) 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 sent out.



The view of the displays during the results sending out when there is no transfer (a) and no data (b)

### Printing of the file's catalogue - PRINT CATALOGUE

The **PRINT CATALOGUE** (*path: MENU / REPORT / PRINT CATALOGUE*) position enables the user to send out the catalogue of the files stored in the instrument to a PC using the SvanPC software and the USB interface. In order to enter this position the user has to select the **PRINT CATALOGUE** text in the **REPORT** list, using the <^>, <v> (or <^>, <v>) push-buttons and press the <ENTER>.



The view of the display in the **REPORT** list, **PRINT CATALOGUE** text highlighted in SLM (a) and VLM (b)

After pressing the <ENTER> push-button the following message is displayed:



The view of the display during the execution of the **PRINT CATALOGUE** operation

When the message is on the display the data are transferred from the instrument to the attached PC. The instrument returns to the **REPORT** list after transferring all data but if the **Prompt** parameter was selected in the **EJECT P.** position of the **OPTIONS** sub-list, the described in the **PRINT RESULT** message is displayed on the display after the data sending out. The user has to answer in this case if the Line Feed has to be added to the transmitted data. The change of the available answers is possible after pressing the <^>, <v> push-buttons. The return to the **REPORT** list is performed after pressing the <ENTER> push-button with the possible Line Feed addition.

When the catalogue of the files is empty (the measurement results were not saved), the instrument returns to the **REPORT** list without any reaction.



The view of the display during the catalogue sending out when there is no data transfer

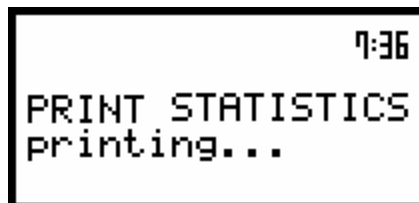
### **Printing of the statistics of measurement results - PRINT STATISTICS**

The **PRINT STATISTICS** (*path: MENU / REPORT / PRINT STATISTICS*) position enables the user to send out the results of the statistics analysis performed during the sound measurements to a PC using the SvanPC software and the USB interface. This position is not accessible for the vibration measurements. In order to enter this position the user has to select the **PRINT STATISTICS** text in the **REPORT** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



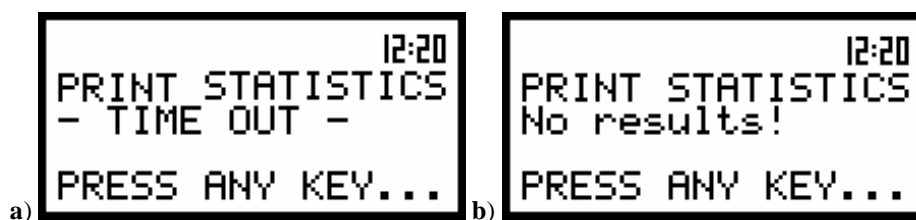
The view of the display in the **REPORT** list, the **PRINT STATISTICS** text highlighted in SLM

After pressing the <ENTER> push-button, in the case when a measurement was already performed and a result is available, the message is displayed:



The view of the display during the execution of the **PRINT STATISTICS** operation

When the message is on the display the data are transferred from the instrument to the attached PC. The instrument returns to the **REPORT** list when all data are transferred but if the **Prompt** parameter was selected in the **EJECT P.** position of the **OPTIONS** sub-list, the described in the **PRINT RESULT** message is displayed on the display after the data transmission. The user has to answer in this case if the Line Feed has to be added to the sending data. 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 Line Feed addition.

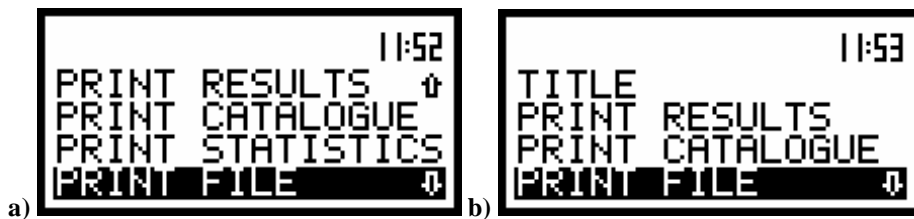


The view of the displays during the statistics sending out when there is no transfer (a) and no data (b)

The message about the time limit is displayed in the case when the PC 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> one) 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 sent out.

**Printing of the measurement results from the selected file - PRINT FILE**

The **PRINT FILE** (*path: MENU / REPORT / PRINT FILE*) position enables the user to send out the contents of the selected file to a PC using the SvanPC software and the USB interface. In order to enter this position the user has to select the **PRINT FILE** text in the **REPORT** list, using the <^>, <v> (or <^>, <v>) push-buttons and press the <ENTER>.



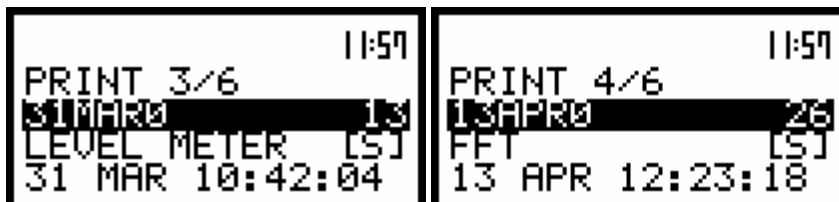
The view of the display in the **REPORT** list, the **PRINT FILE** text highlighted in SLM (a) and VLM (b)

If no files were saved in the instrument's memory then after pressing <ENTER> a special message is displayed and the unit waits for the reaction of the user. In this time any push-button should be pressed except the <SHIFT> one and after pressing a push-button the instrument returns to the **REPORT** list.



The view of the display in the **REPORT** list, the **PRINT FILE** position when no files were saved

In the consecutive lines of the display the current file number, the total number of the files, the file name, file type, date and time of registration are presented. The change of the current file with the unit step can be done pressing the <^>, <v> push-buttons. After pressing the <^> with <SHIFT> push-button the first file is available and after pressing the <v> with <SHIFT> push-button - the last one is displayed.



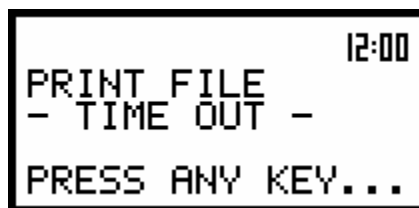
The view of the displays during the selection of the file to be sent out

The contents of the selected file is sent out to a PC after pressing the <ENTER> push-button. The following message is displayed on the display during the printing:



The view of the display during the execution of the **PRINT FILE** operation

The instrument returns to the **REPORT** list when all data are transferred but if the **Prompt** parameter was selected in the **EJECT P.** position of the **OPTIONS** sub-list, the described in the **PRINT RESULT** message is displayed on the display after the printing. The user has to answer in this case if the Line Feed has to be added to the transferred data. 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 Line Feed addition.



The view of the display during the file sending out when there is no data transfer

The message about the time limit is displayed in the case when the PC 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> one) and it returns to the **REPORT** list after pressing a push-button.

### Printing of the results from the selected buffer's file - **PRINT BUFFER**

The **PRINT BUFFER** (*path: MENU / REPORT / PRINT BUFFER*) position enables the user to send out the contents of the selected file in the buffer to a PC using the SvanPC software and the USB interface. In order to enter this position the user has to select the **PRINT BUFFER** text in the **REPORT** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



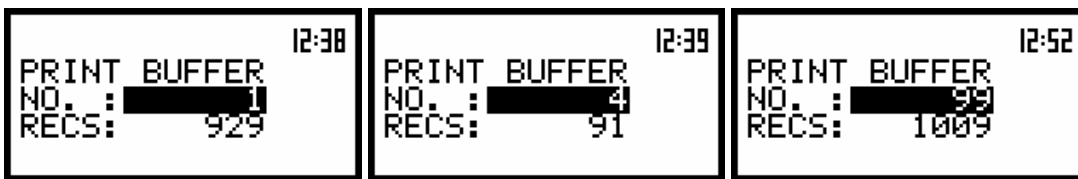
The view of the display in the **REPORT** list, the **PRINT BUFFER** text highlighted in SLM (a) and VLM (b)

If no files were saved in the instrument's buffer then after pressing the <ENTER> push-button the special message is displayed and the unit waits for the reaction of the user. In this time any push-button should be pressed except the <SHIFT> one and after pressing a push-button the instrument returns to the **REPORT** list.



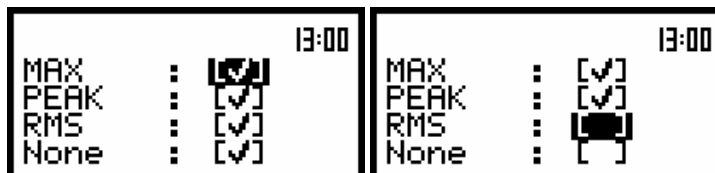
The view of the display in the *REPORT* list, the PRINT BUFFER position when no files were saved

If in the instrument's buffer there are the results 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. In order to better identification the buffer's file, under the file's number, the number of records saved in a file is presented.



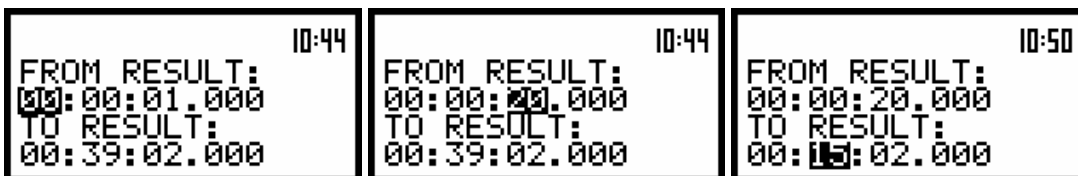
The displays during the selection of the buffer's file for transferring out (a), (b) and when it is no file in the buffer (c)

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



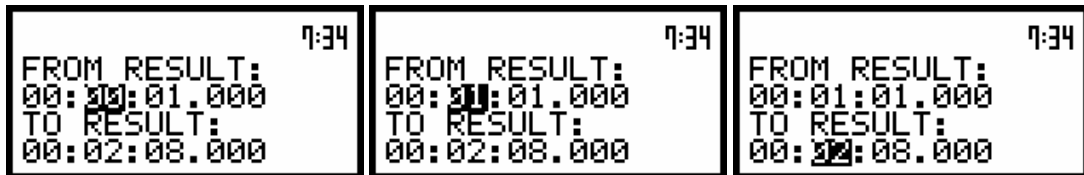
The displays after entering the selection of the results to be sent out (a) and before leaving this window (b)

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



The displays during the setting of the start time of the results stored in the buffer's file for transferring

The setting of the start time (**FROM RESULT**) and the end time (**TO RESULT**) is performed by pressing the <◀>, <▶> push-buttons (the selection of the position to be edited) and the <▲>, <▼> push-buttons (the value setting in the selected position).



The displays during the setting of the end time of the results stored in the buffer's file for transferring

The contents of the selected results from the buffer's file is sent out to the connected PC after pressing the <ENTER> push-button. The following message is displayed on the display during the data transfer:



The view of the display during the execution of the PRINT BUFFER operation

The instrument returns to the *REPORT* list when all data are transferred but if the **Prompt** parameter was selected in the **EJECT P.** position of the **OPTIONS** sub-list, the described in the **PRINT RESULT** message is displayed on the display after the data transfer. The user has to answer in this case if the Line Feed has to be added to the transferred data. 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 Line Feed addition.

The message about the time limit is displayed in the case when the PC 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 display during the file transfer from the buffer when there is no data transfer

### Printing of the coefficients of the user filters - PRINT U.FILTERS

The **PRINT U.FILTERS** (*path: MENU / REPORT / PRINT U.FILTERS*) position enables one to send out the coefficients of the user filters sets to a PC using the SvanPC software and the USB interface. In order to enter this position the user has to select the **PRINT U.FILTERS** text in the *REPORT* list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER> one.



The view of the display in the *REPORT* list, the PRINT U.FILTERS text highlighted (displayed inversely)



The view of the display of the PRINT U. FILTERS positions

The coefficients are sent out after pressing the <ENTER> push-button. The following message is displayed on the display during the data transfer:



The view of the display during the execution of the PRINT U. FILTERS operation

The instrument returns to the **REPORT** list when all data are transferred but if the **Prompt** parameter was selected in the **EJECT P.** position of the **OPTIONS** sub-list, the described in the **PRINT RESULT** message is displayed on the display after the printing. The user has to answer in this case if the Line Feed has to be added to the transferred data. 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 Line Feed addition.

The message about the time limit is displayed in the case when the PC 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 display during the transfer of the USER FILTERS set when there no data are sent out

### Selection of the printing options - OPTIONS

Using the **OPTIONS** (*path: MENU / REPORT / OPTIONS*) sub-list the user can select the format of the listing (**FORMAT** position), can control the addition of the Line Feed character (**EJECT P.** position) and select the language of the sent out report (**LANGUAGE** position). In order to enter this position the user has to select the **OPTIONS** text in the **REPORT** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



The view of the display in the REPORT list, the OPTION text highlighted (displayed inversely)

### Selection of the format of data transfer - *FORMAT*

The **FORMAT** position enables the user to select the format of data transfer (**A4** and **A5** options are available). In the **FORMAT** position any change is performed by means of the <◀>, <▶> push-buttons. In order to confirm the selection the <ENTER> push-button has to be pressed. After this confirmation the **OPTIONS** sub-list is closed. In order to ignore any changes made in the **OPTIONS** sub-list the user has to press the <ESC> push-button.



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

### Controlling the paper ejection after print out - *EJECT P.*

The **EJECT P.** position enables the user to control the addition of the Line Feed character. The following options are available: **Prompt** (the instrument asks whether to add the Line Feed character after data transfer), **Auto** (after data transfer, the Line Feed is added) and **None** (the Line Feed character is not added after data transfer). In particular, it is possible to have one result after another using the **None** or **Prompt** options.

In the **EJECT P.** position any change is performed by means of the <◀>, <▶> push-buttons. In order to confirm the selection the <ENTER> push-button has to be pressed. After this confirmation the **OPTIONS** sub-list is closed. In order to ignore any changes made in the **OPTIONS** sub-list the user has to press the <ESC> push-button.



The view of the displays with the **OPTIONS** sub-list opened – the selection of the Line Feed addition

The request is displayed on the display after the measurement results transfer, 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**, **PRINT U. FILTERS** 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 Line Feed has to be added to the transferred data. 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 Line Feed addition.



The view of the displays after data transfer with the request for the confirmation of the Line Feed addition (a), (b) and when there is not possible to add the Line Feed character (c)

The message about the time limit is displayed in the case when the PC is not connected or there is any other reason that it does not add the Line Feed character. 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 **REPORT** list.

### *Selection of the language of the printed report - LANGUAGE*

The **LANGUAGE** position enables the user to select the language in which the report has to be transferred. Two options are available: English (**Eng**) and Polish (**Pol**). In the **LANGUAGE** position any change is performed by means of the **<◀>**, **<▶>** push-buttons. In order to confirm the selection the **<ENTER>** push-button has to be pressed. After this confirmation the **OPTIONS** sub-list is closed. In order to ignore any changes made in the **OPTIONS** sub-list the user has to press the **<ESC>** push-button.



The view of the displays with the **OPTIONS** sub-list opened; the selection of the language