

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 finely 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 **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:

| | |
|----------------------|--|
| DISPLAY MODES | enables one to select the mode of the measurement results presentation; |
| DISPLAY SETUP | enables one to change the scale in the graphical modes of result's presentation; |
| BUFFER VIEW | enables one to view at the results stored in the files of the buffer; |
| BATTERY | enables one to check the state of the internal battery of the unit; |
| CONTRAST | enables one to set the contrast of the unit's display; |
| BACKLIGHT | enables one to set the brightness of the backlight of the display and the keyboard; |
| UNIT LABEL | 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

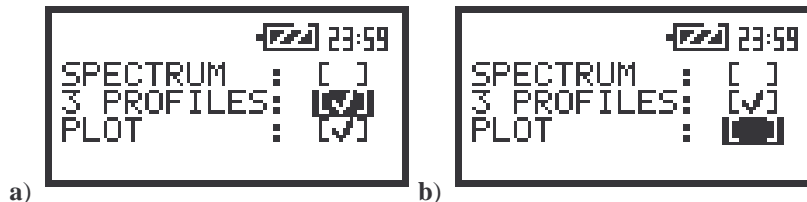
The **DISPLAY MODES** (*path: MENU / DISPLAY / DISPLAY MODES*) sub-list enables one the selection of the currently available modes of displaying the results of measurement. The selection is made by placing or replacing the special character in the inversely displayed position of the **DISPLAY MODES**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

selection of the instrument's function (**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 **Vibration Level Meter** the following possibilities of the measurement results presentation are available:

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

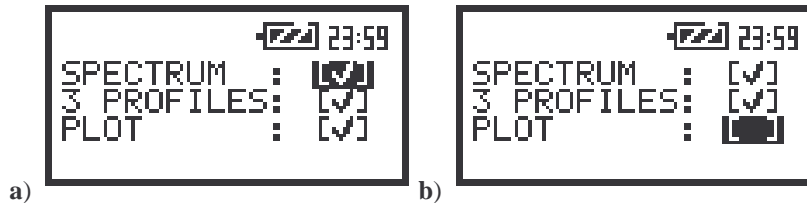
The **SPECTRUM** position is never available for the **Vibration Level Meter** (it is never displayed inversely).



The view of **DISPLAY MODES** (path: *MENU / DISPLAY / DISPLAY MODES*) sub-list for the VLM with all possibilities switched on (a) and PLOT switched off (b)

For the frequency analysis of the measured signal (**1/1 OCTAVE**, **1/3 OCTAVE** or **FFT**) the following modes of the measurement results presentation are available:

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



The view of the **DISPLAY MODES** (path: *MENU / DISPLAY / DISPLAY MODES*) sub-list with all possibilities of results presentation for the frequency analysis switched on (a) and STATISTICS and PLOT 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**, **P-P**, **MAX** or **RMS**) 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 scale in graphical results presentations - DISPLAY SCALE

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 is possible to change the scale of the vertical axis only. 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** list, the **DISPLAY SCALE** text highlighted (path: MENU / DISPLAY / DISPLAY SETUP / DISPLAY SCALE)

Two options of the display scale are available: **LINEAR** and **LOGARITHM**. 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.



The view of the displays with the possible options of the **DISPLAY 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 valid only if the **LOGarithmic** scale was selected.



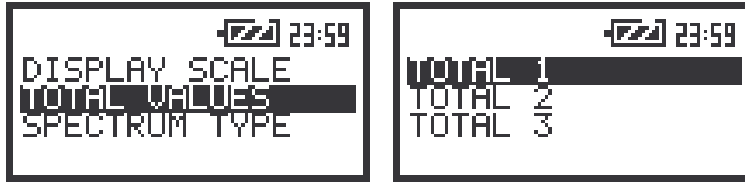
The view of the displays with the possible values of the vertical axis in **PLOT** and **SPECTRUM** presentations

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

It is not possible, up to the version 4.03 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.



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

Selection of the Weighted Filters for the 1st 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**), its type (**TYPE**) and the calibration coefficient (**CAL. F.**).

- ∇ **FILTER:** (position); available values of the weighted filters: **HP**, **USER 1**, **USER 2**, **USER3** or any other sent to the unit by means of the interface
- ∇ **TYPE:** (position); available values if **USER 1**, **USER 2** or **USER3** was selected in the previous position: **ACC**, **VEL** and **DIL**; if the **HP** filter was selected this position is not displayed
- ∇ **CAL. F.:** (position); accessible if **USER 1**, **USER 2** 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 view of the displays with the **TOTAL 1** list opened

Selection of the Weighted Filters for the 2nd profile - TOTAL 1

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.**).

- ∇ **FILTER:** (position); available values of the weighted filters: **PR 2**, **USER 1**, **USER 2**, **USER3** or any other sent to the unit by means of the interface
- ∇ **TYPE:** (position); available values if **USER 1**, **USER 2** 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 2nd profile) this position is not displayed
- ∇ **CAL. F.:** (position); accessible if **USER 1**, **USER 2** or **USER3** was selected in the **FILTER** position; if the **PR 2** filter was selected (the filter which was set in the 2nd 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 3rd profile - TOTAL 1

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.**).

- ∇ **FILTER:** (position); available values of the weighted filters: **PR 3, USER 1, USER 2, USER3** or any other sent to the unit by means of the interface
- ∇ **TYPE:** (position); available values if **USER 1, USER 2** 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 3rd profile) this position is not displayed
- ∇ **CAL. F.:** (position); accessible if **USER 1, USER 2** or **USER3** was selected in the **FILTER** position; if the **PR 3** filter was selected (the filter which was set in the 3rd 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**.



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

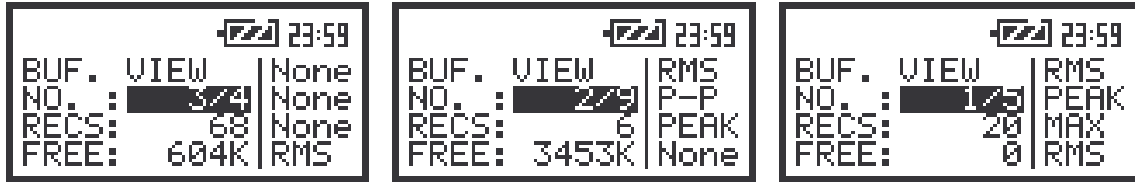
The **BUFFER VIEW** sub-list enables the user to examine the contents of the buffer. In order to open this sub-list the user has to press the **<ENTER>** push-button when the **BUFFER VIEW** text is displayed inversely. The following parameters of the buffer are presented on the instrument's display:

- 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:**).



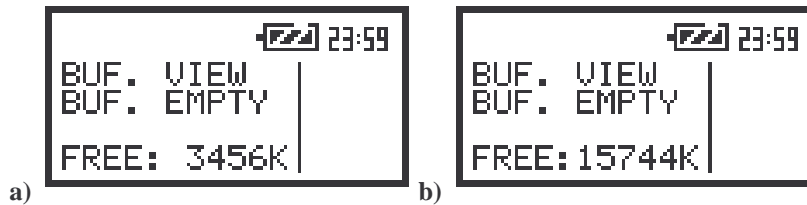
The view of the display with the **DISPLAY** list, the **BUFFER VIEW** text highlighted
(*path: MENU / DISPLAY / BUFFER VIEW*)

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.



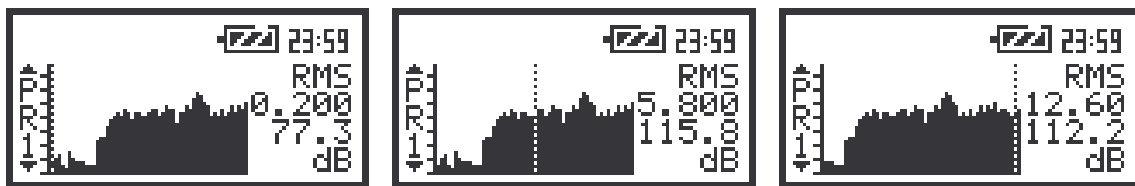
The view of the displays with the **BUFFER VIEW** (path: MENU / DISPLAY / BUFFER VIEW) sub-list opened: the selection of the file to be seen

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).



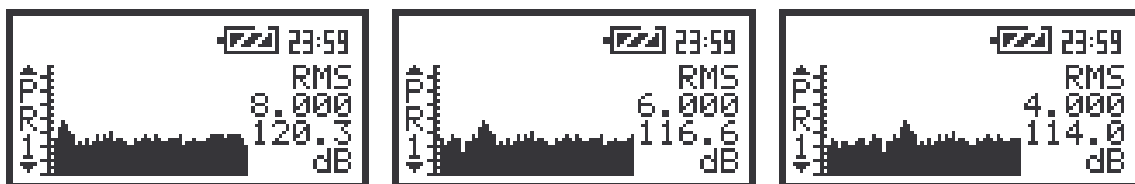
The view of the display with **BUFFER VIEW** sub-list in the case when there are no files in the buffer in the unit with 8 MB of internal memory (a) and with 32 MB of internal memory (b)

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.

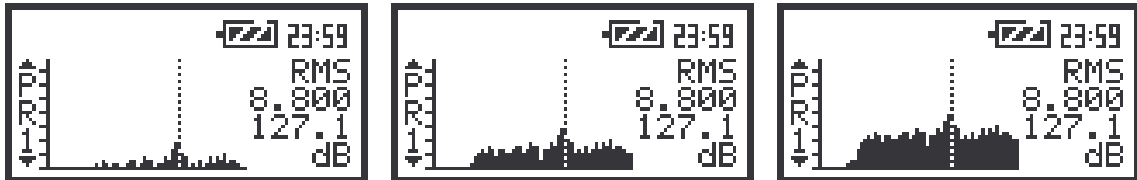


The view of the displays with the selected file from the buffer; the scrolling to the right



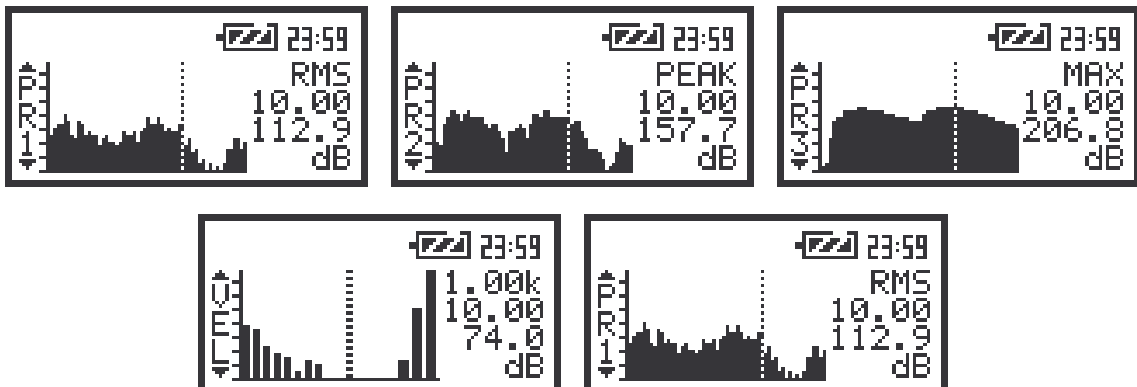
The view of the displays with the selected file from the buffer; the scrolling to the left

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



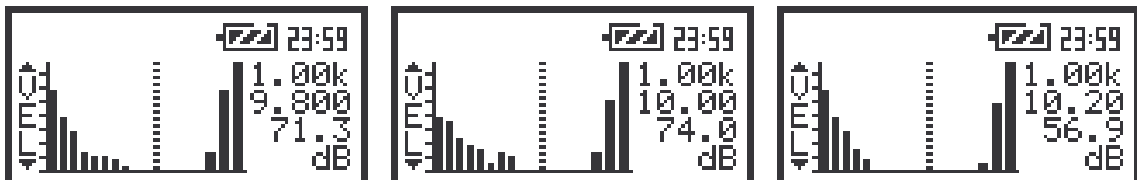
The view of the displays with the selected file from the buffer; the change of the axis relation

The selected file in the buffer can contain the measurement results from up to 3 profiles (i.e. **RMS1**, **PEAK2**, **MAX3**) and the spectra. The change of the displayed result is possible after pressing the <▲> or <▼> push-button. The results on the display are in this case changed in the cycle (i.e. **RMS1** -> **PEAK2** -> **MAX3** -> **spectrum** -> **RMS1** -> **PEAK2** and so on).



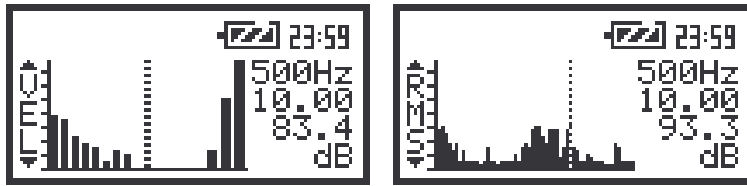
The view of the displays with the selected file from the buffer; the change of the result after pressing <▲> or <▼> push-button

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 <◀> for the spectra saved earlier.



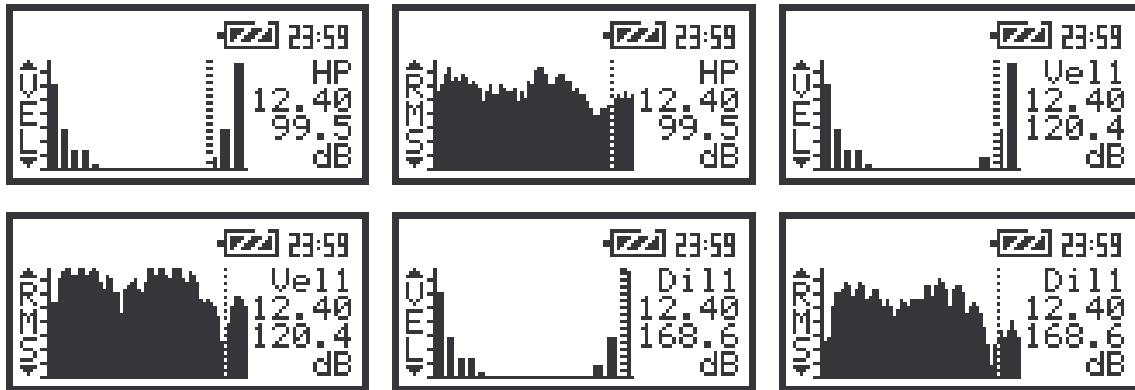
The view of the displays with the selected file from the buffer containing spectra; the change of the spectra after pressing <SHIFT> together with <◀> or <▶>

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).

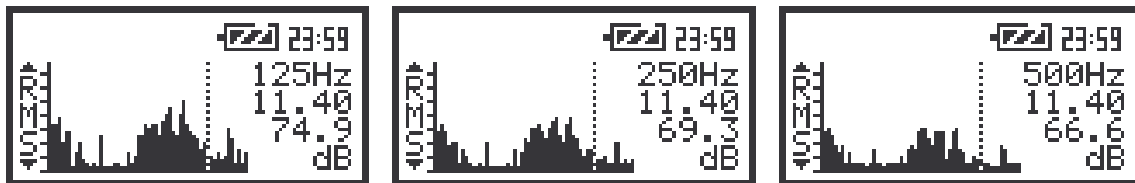


The view of the displays with the selected file from the buffer containing spectra; the TOTAL values and their time histories

Settings of the meter:

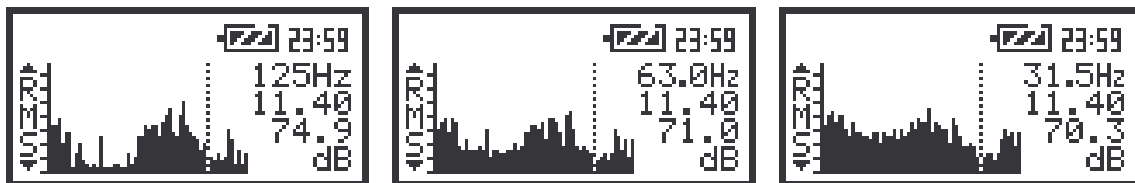
- DISPLAY SCALE: LOGarithmic (path: MENU / DISPLAY / DISPLAY SETUP / DISPLAY SCALE/LOG),
- TOTAL 1: HP (path: MENU / DISPLAY / DISPLAY SETUP / TOTAL VALUES);
- TOTAL 2: PR2: Ve11 filter (path: MENU / INPUT / PROFILES SETUP / PROFILE 2);
- TOTAL 3: PR3: Di11 filter; (path: MENU / INPUT / PROFILES SETUP / PROFILE 3)
- SPECTRUM TYPE:VELOCITY (path: MENU / DISPLAY / DISPLAY SETUP / SPECTRUM TYPE)

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 <v> push-buttons. After pressing the <^> push-button the time history for the higher frequency filter can be seen.



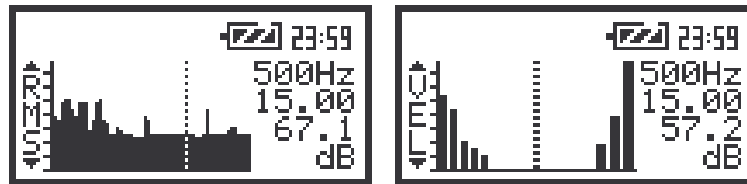
The view of the displays with the selected file from the buffer containing spectra; the change of the time histories of the filters (and the filters) after pressing the <^> push-button

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



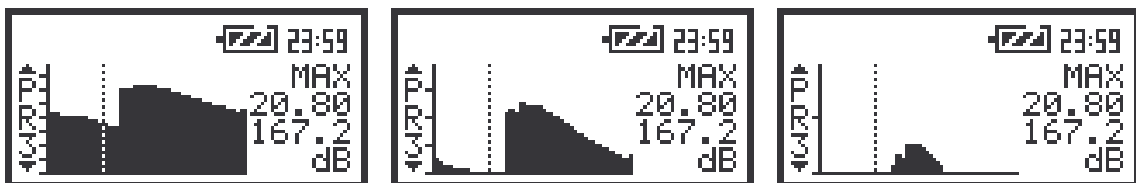
The view of the displays with the selected file from the buffer containing spectra; the change of the time histories of the filters (and the filters) after pressing the <v> push-button

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



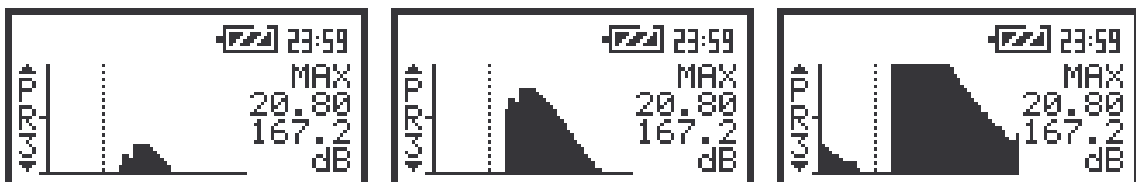
The view of the displays with the selected file from the buffer containing spectra; the change between time history and spectra after pressing <ENTER> push-button for 500 Hz filter

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.



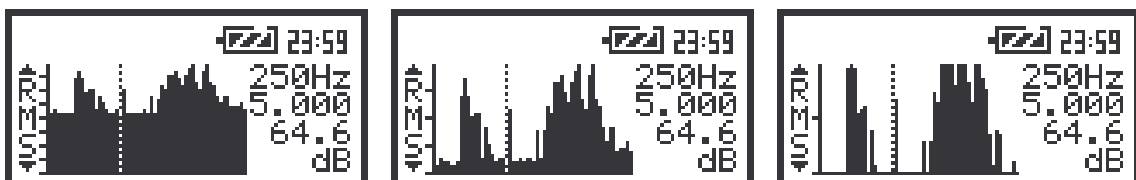
The view of the displays with the selected file from the buffer containing spectra; the time history of the MAX value from the third profile displayed with 80 dB, 40 dB and 20 dB dynamic (set in the DISPLAY SCALE)

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).

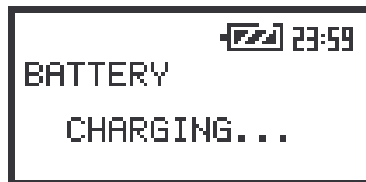
Checking the state of the internal battery - BATTERY

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* (path: MENU / DISPLAY / CONTRAST) position; the change of the display contrast

Setting the backlight parameters - BACKLIGHT

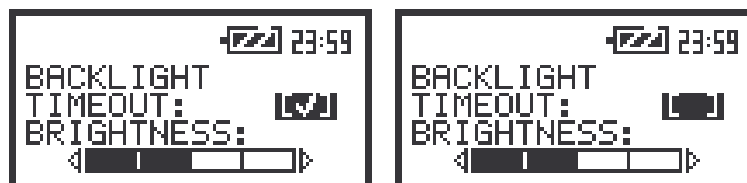
The **BACKLIGHT** (path: MENU / DISPLAY / BACKLIGHT) sub-list enables one to set the parameters of the backlight of the display and the keyboard (using the <◀>, <▶> or <▲>, <▼> push-buttons). The user can switch on the automatic switch off of the backlight after a certain period as well as set its brightness.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



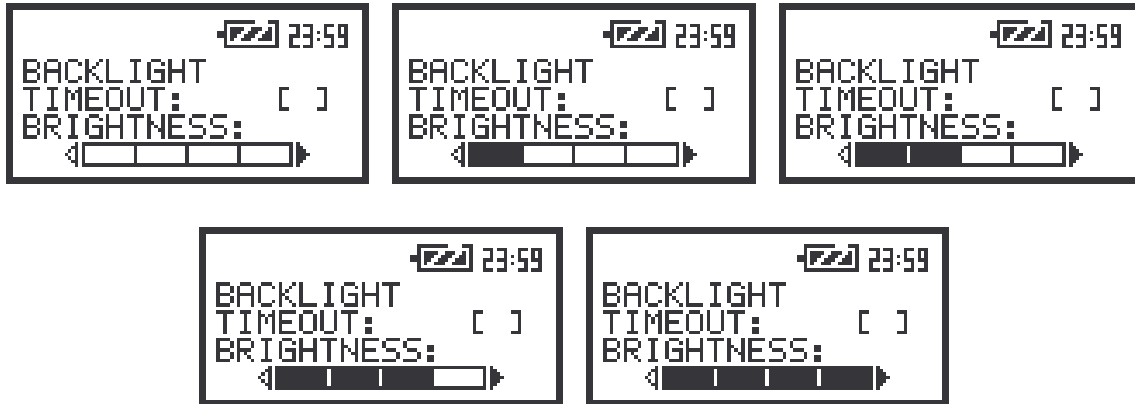
The view of the displays in the **BACKLIGHT** (path: MENU / DISPLAY / BACKLIGHT) sub-list; the **TIMEOUT** position active

Setting the brightness of the backlight - BRIGHTNESS

It is possible to change the brightness of the backlight using the <◀>, <▶> pushbuttons. The user can select five different values of this parameter.



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

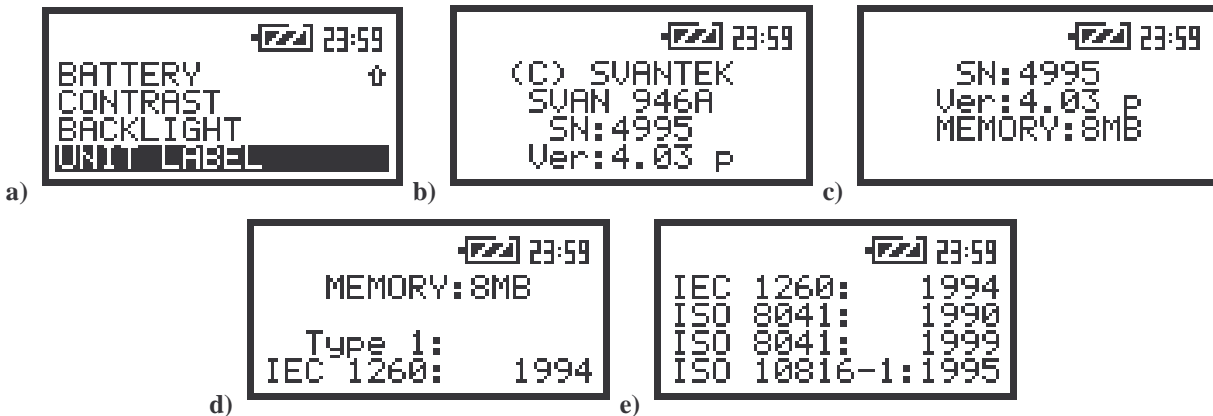


The view of the displays in the BACKLIGHT sub-list; the BRIGHTNESS position active

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

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 <◀>, <▶> 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.

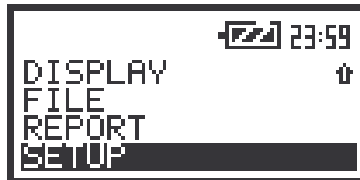


The view of the displays with the UNIT LABEL position (*path: MENU / DISPLAY / UNIT LABEL*) selected (a) and entered (b) and after scrolling with the <^>, <v> push-buttons (c), (d), (e)

5.2. SETUP MENU

The **SETUP** (*path: MENU / SETUP*) list contains different sub-lists and positions. Some of them depend on the mode of the instrument 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:

| | |
|-------------------------|---|
| TIMER | position which enables the user to set the Timer function. |
| RTC | position which enables the user to set the Real Time Clock. |
| RS232 | sub-list which enables the user to set the transmission speed and the timeout in the RS232 interface. |
| USER FILTERS | sub-lists which enables the user to set the correcting coefficients. |
| SHIFT MODE | sub-list which enables the user to set the operating mode of the <SHIFT> and the <START / STOP> push-buttons. |
| CLEAR SETUP | position which enables the user to return to the producer's set up, except the coefficients set in the USER FILTERS . |
| RMS INTEGRATION | position which enables the user to select the way of integration for the RMS measurement. |
| REFERENCE LEVEL | position which enables the user to select the reference level for the vibration measurements. |
| VIBRATION UNITS | position which enables the user to select the vibration units in which the results of the measurements are to be given. |
| HUMAN VIB. FILT. | (sub-list); this list enables the user to introduce the code for Human Vibration Option; when the option is already available in the instrument this position is taken out from the SETUP list |
| WARNINGS | 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 vibration



The view of the displays with the *SETUP* list with Human Vibration option not activated

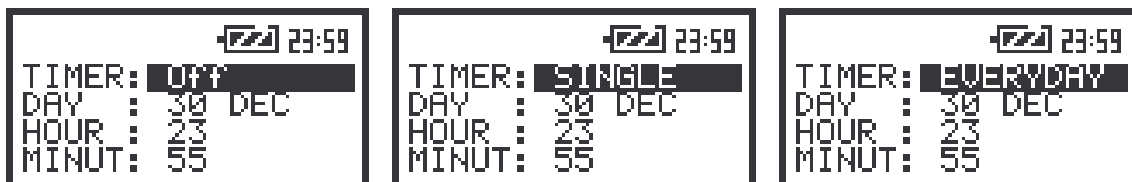
Programming of the instrument's internal timer - *TIMER*

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 <v> push-buttons) and press the <ENTER>.

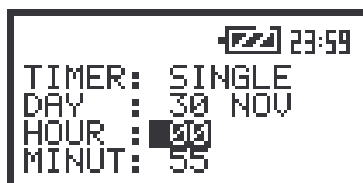


The view of the display in the *SETUP* list in vibration measurements, the **TIMER** text highlighted (displayed inversely)

The operation of the **TIMER** setting is performed in the same way as it was described in the case of the **FILE NAME** window. The selection of the setting parameter is performed using the <^>, <v> 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 **TIMER** position (path: *MENU / SETUP / TIMER*)



The view of the **TIMER** position



Notice: The selected value has to be confirmed by pressing the **<ENTER>** push-button, which causes the simultaneous return to the **SETUP** list. All settings are ignored after the return to the **SETUP** list by pressing the **<ESC>** push-button

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

```

                [Battery] 23:59
WARM UP TIME
please wait: 48s
<ESC> to skip
  
```

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 **<▲>**, **<▼>** (or **<◀>**, **<▶>**) push-buttons and press the **<ENTER>**.

```

                [Battery] 23:59
TIMER
RTC
RS232
USER FILTERS 0
  
```

The view of the display in the **SETUP** list in vibration measurements, 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 **<▲>**, **<▼>** push-buttons. The parameter, which value has to be changed, is flashing.

```

                [Battery] 23:59
RTC
00:31:15
01 JAN 2000
  
```

```

                [Battery] 23:59
RTC
00:48:10
11 NOV 2003
  
```

The view of the RTC position



Notice: The new value of a parameter is confirmed after each pressing of the <▲>, <▼> (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 parameters of the serial interface - RS232

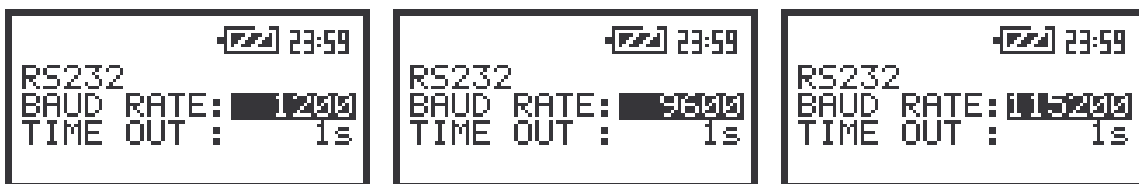
The **RS232** (path: *MENU / SETUP / RS232*) sub-list enables the user to programme the RS 232 interface transmission speed (**BAUD RATE** position) and to set the time limit before which the interface operation should be performed (**TIME OUT** position). In order to enter this position the user has to select the **RS232** text in the *SETUP* list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



The view of the display in the *SETUP* list in vibration measurements, the RS232 text highlighted (displayed inversely)

Setting the transmission speed of the serial interface - BAUD RATE

The transmission speed can be selected from the following items: **1200** (bits / second), **2400** (bits / s), **4800** (bits / s), **9600** (bits / s), **19200** (bits / s), **38400** (bits / s), **57600** (bits / s) or **115200** (bits / s). The selection is made by means of the <◀>, <▶> push-buttons. The other RS 232 transmission parameters are fixed to: **8 bits for data, No parity & 1 Stop bit**. The selected value has to be confirmed by pressing the <ENTER> push-button, which causes the simultaneous return to the *SETUP* list. All settings are ignored after the return to the *SETUP* list by pressing the <ESC> push-button.

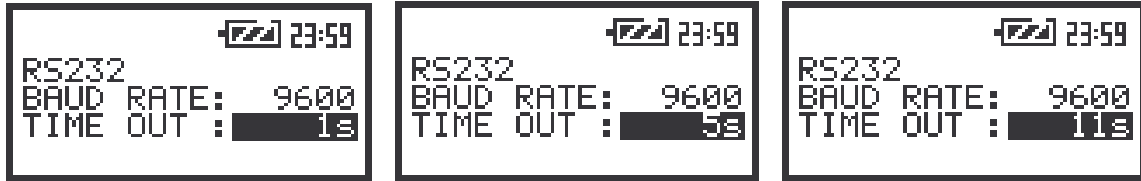


The view of the RS232 sub-list; the BAUD RATE setting

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

The value shown in the inversely displayed line is increased or decreased by one with each pressing the <◀>, <▶> push-buttons. The step is increased to ten after pressing the <◀>, <▶> push-buttons together with the <SHIFT> one. The default value of this parameter is equal to 1 but it can be too short time for the printers which are not too fast. In such case the **TIME OUT** parameter has to be increased. The sub-list is closed and the instrument returns to the *SETUP* list after pressing the

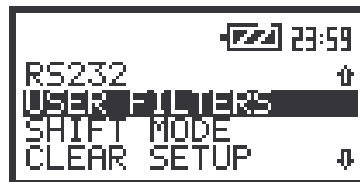
<ENTER> (with the confirmation of all changes made in the sub-list) or <ESC> push-button (ignoring all changes made in the sub-list).



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

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. In order to enter this sub-list the user has to select the **USER FILTERS** text in the **SETUP** list, using the <^>, <v> (or <^>, <v>) push-buttons and press the <ENTER>. The texts which appear after pressing <ENTER> depends on the position set in the **MODE** sub-list.



The view of the display in the **SETUP** list in vibration measurements, the **USER FILTERS** text highlighted (displayed inversely)

USER FILTERS (sub-list) contains 3 sub-list:

§ VIEW

- **VIEW** enables the user to select which filter should be viewed; the available options are **USER1**, **USER2**, **USER3** and any other transmitted to the instrument from a PC by means of the interface

After pressing the <ENTER> push-button another sub-list opens containing the values of filters used in **1/1 OCTAVE** or **1/3 OCTAVE** analysis and saved under the name **USER1**, **USER2**, **USER3** or any other

§ EDIT

- **EDIT**- 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

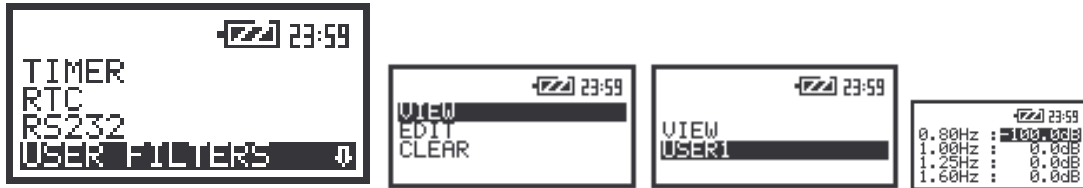
After pressing the <ENTER> push-button another sub-list opens containing the values of the filters used in **1/1 OCTAVE** or **1/3 OCTAVE** analysis; the user can set the values of correcting coefficients for all **1/3 OCTAVE** filters:

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

§ CLEAR (position)

- **CLEAR** enables the user to select which filters should be cleared; the available options are as follows: **ALL**, **USER1**, **USER2**, **USER3** or any other

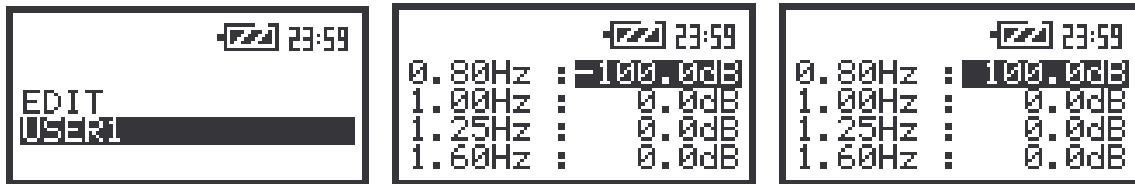
The selection of the position in this sub-list is performed by means of the <▲>, <▼> (or <◀>, <▶>) push-buttons. The sub-list is closed and the instrument returns to the *SETUP* list after pressing the <ESC> push-button (ignoring a change made in the position). After pressing the <ENTER> push-button on the displayed inversely text the proper sub-list is opened.



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 (position)

After pressing the <ENTER> push-button when the **USER1** (in the EDIT position) text is displayed inversely, the sub-list containing the status of the selected set and the values of the coefficients for all **1/3 OCTAVE** filters is opened. The status position informs the user that the set is switched on. It is not possible to change the status.



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

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).

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**) or to clear the third one (**USER3**)



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

The coefficients of a set (or sets) are cleared after the selection of the proper text by means of the <◀>, <▶> push-buttons and after pressing the <ENTER> one.



The view of the displays in the CLEAR position

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 vibration measurements, 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** 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* (*path: MENU / SETUP / 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** 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** (path: *MENU / SETUP / SHIFT MODE*) sub-list; the available settings in the **ST/SP** position

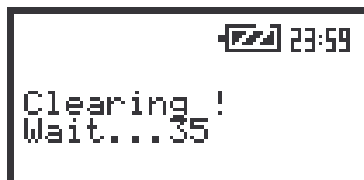
Return to the factory made settings - CLEAR SETUP

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.

Setting the reference signal in vibration measurements - REFERENCE LEVEL

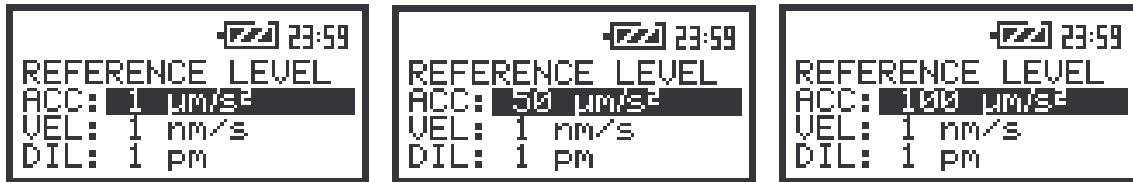
The **REFERENCE LEVEL** (*path: MENU / SETUP / REFERENCE LEVEL*) sub-list enables the user to set the reference level of the vibration signal. The values which are set here are taken into account during the calculations of the measurement results expressed in the logarithmic scale (with the dB as the 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 **REFERENCE LEVEL** text highlighted (displayed inversely)

Setting the reference level of the acceleration signal - ACC

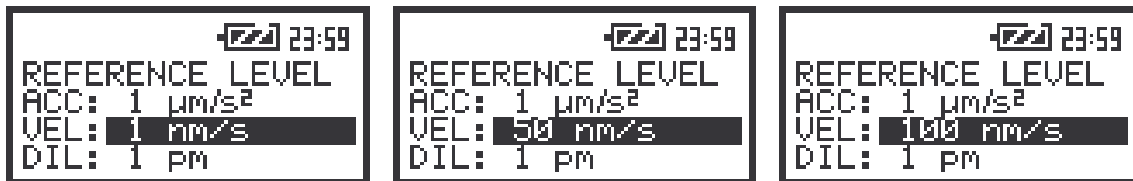
In the **ACC** position the user can set the reference level of the acceleration signal. It is possible to set this level from $1 \mu\text{ms}^{-2}$ to $100 \mu\text{ms}^{-2}$ with $1 \mu\text{ms}^{-2}$ step pressing the <◀>, <▶> push-buttons. The step can be increased to $10 \mu\text{ms}^{-2}$ pressing 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 nms^{-1} to 100 nms^{-1} with 1 nms^{-1} step pressing the <◀>, <▶> push-buttons. The step can be increased to 10 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 μm 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

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^2 , 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 human vibration filter - HUMAN VIB. FILT

The **HUMAN VIB.FILT.** (sub-list); enables the user to introduce the code for Human Vibration Option. In order to enter this position the user has to select the **HUMAN VIB.FILT.** text in the **SETUP** list, using the **<▲>**, **<▼>** (or **<▲>**, **<▶>**) push-buttons and press the **<ENTER>**.



The view of the display in the *SETUP* list, the *HUMAN VIB.FILT* text highlighted (displayed inversely)

When the human vibration option is already available in the instrument this position (**HUMAN VIB. FILT.**) is taken out from the *SETUP* list.

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 <^>, <v> (or <^>, <v>) push-buttons and press the <ENTER>. In the internal software version 4.03 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 <^>, <v> 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 946A instrument there are five different types of files containing data:

- 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 (VLM, 1/1 OCTAVE, 1/3 OCTAVE or FFT analysis, buffer). 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 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 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 <^>, <v> (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 <v> (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** (path: MENU / FILE / 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.

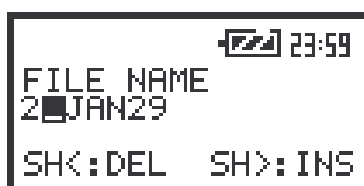
The user can skip the full edition of the file's name pressing once more the **<ENTER>** push-button. It will result in the passing to the phase of the file's saving described just after the **FILE NAME** window.

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 view of the display during the selection of the character position to be edited

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.



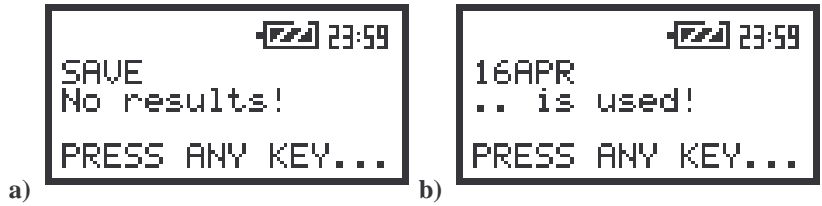
The view of the displays in the simplified edition of the file name

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 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:



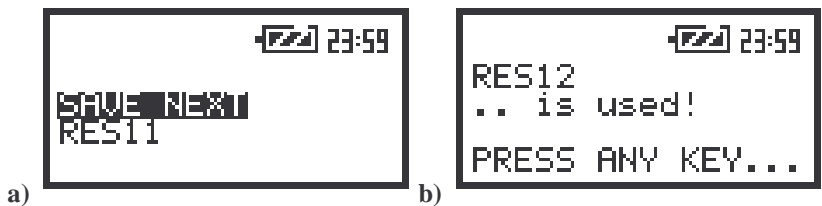
The view of the display during the execution of the SAVE operation

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 **<^>**, **<^>**) push-buttons). The return to the **FILE** list is possible after pressing the **<ESC>** push-button.

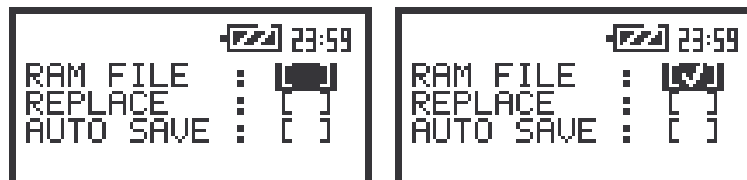


The view of the displays in the **FILE** sub-list with the **SAVE OPTIONS** text highlighted (displayed inversely)

It is possible to replace the existing in the memory file by the new with the same name (the **REPLACE** position) 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

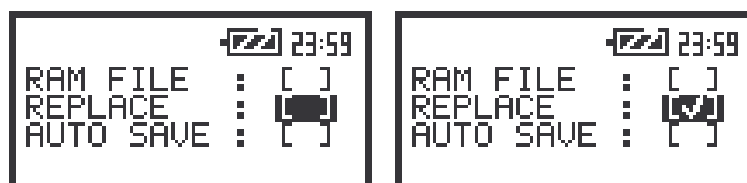
The **RAM FILE:** (position) enables the user to save the results of the measurement in the special file at RAM memory (the name of the file is defined as a "RAMfile"). The activation or deactivation of the **RAM FILE** position is done by pressing the **<^>**, **<^>** push-buttons. This option is useful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

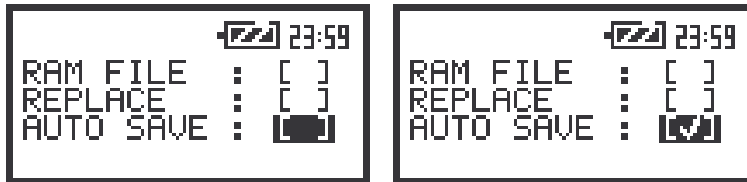
After pressing the **<ENTER>** push-button the selections made in any position of the sub-list (in particular also in the **REPLACE** position) are confirmed and the sub-list is closed. In the case when the **AUTO SAVE** option was active ([√]), after pressing the **<ENTER>** push-button the **FILE NAME**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



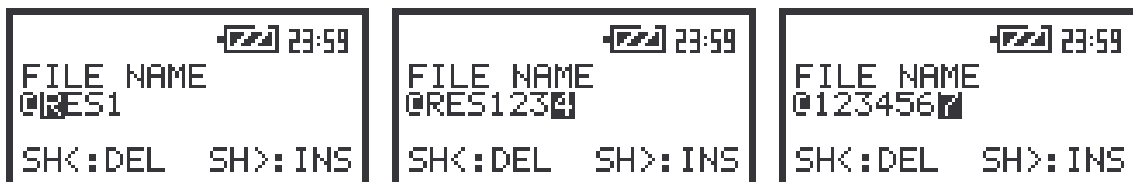
The displays during the execution of the SAVE OPTIONS – the selection of the AUTO SAVE parameters

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 **<^>**, **<v>** (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.



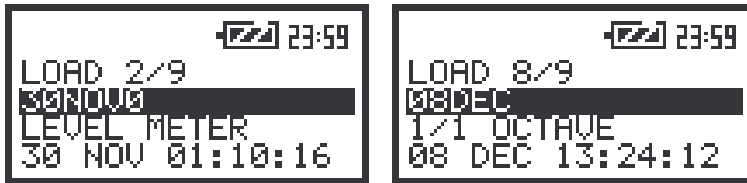
The view of the displays with the message stating the reason for unfeasibility of the required operation

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.



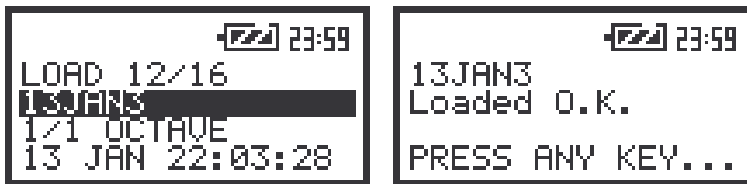
The view of the displays during the overview of the file list

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.



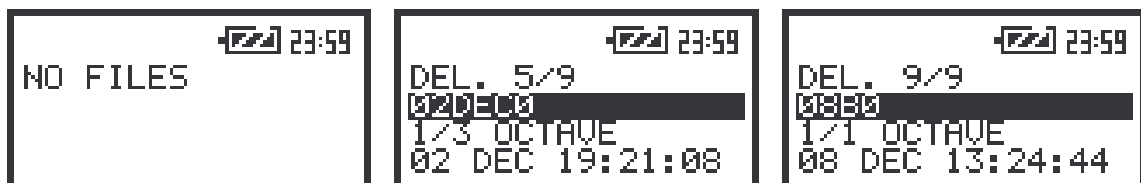
The view of the displays with the message stating the reason for unfeasibility of the required operation

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 *DELETED* 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 **DELETED** 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 <^>, <v> (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.



The view of the displays during the execution of the **DELETE ALL** 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 **DELETE 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 **DELETE 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 **<▲>**, **<▼>** (or **<◀>**, **<▶>**) push-buttons and press the **<ENTER>**.



The view of the displays in the *FILE* sub-list with the DEFAGMENTATION 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 DEFAGMENTATION 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 DEFAGMENTATION operation is not required

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



The view of the displays during the execution of the DEFAGMENTATION 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 **DEFAGMENTATION** operation is visible in Fig. c, while the state of the memory before the execution of this operation is given in Fig. a.



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 <^>, <v> (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 (see below) and the instrument returns after few seconds to the list from which the **CLEAR BUFFER** position was called.



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

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

Checking the contents of the memory - CATALOGUE

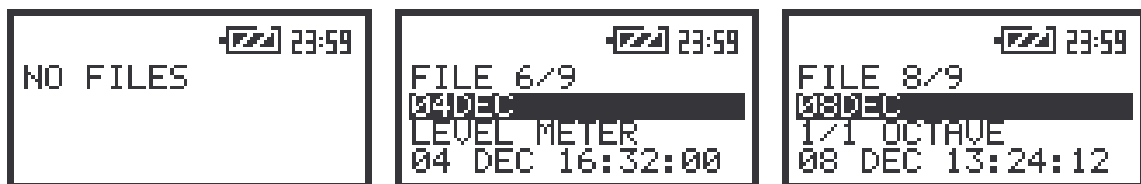
The **CATALOGUE** (*path: MENU / FILE / CATALOGUE*) position is used for checking the contents of the memory (the list of the files). In order to enter this position the user has to select the **CATALOGUE** text in the *FILE* list, using the <^>, <v> (or <◀>, <▶>) push-buttons and press the <ENTER>.



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

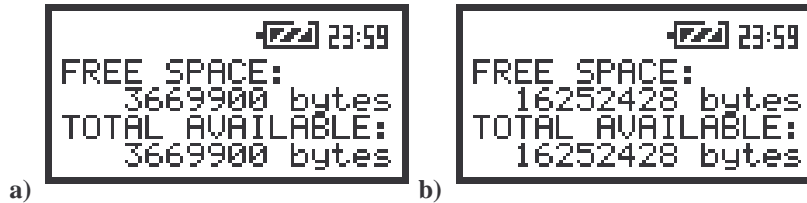
Checking the free space in the memory - FREE SPACE

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 <^>, <v> (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 (<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 **Vibration 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)!

- 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 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 <^>, <v> (or <^>, <v>) 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 <v> (or <SHIFT> and <v>) 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 printer's RS 232 port** using the proper cable **or**, in the case when the printer has no such port, **connect the parallel output of the printer with the SV 52 parallel-serial interface and**, using the SC 17 cable, **connect the instrument with the interface**.



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

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

| | |
|------------------------|--|
| TITLE | which enables the user to give the header to the printed report; |
| PRINT RESULTS | which enables the user to print out the measurement results on the default printer; |
| PRINT CATALOGUE | which enables the user to print out the catalogue of the files; |
| PRINT FILE | which enables the user to print out the contents of the selected file; |
| PRINT BUFFER | which enables the user to print out the contents of the selected file from the buffer; |
| PRINT U.FILTERS | which enables the user to print out the values of the user filters; |
| OPTIONS | which enables the user to determine the options of the report. |



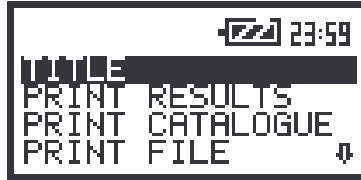
Notice: All reports are printed in the character format using ASCII set.



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

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 printed. 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 <^>, <v> (or <^>, <^>) push-buttons and press the <ENTER>.



The view of the display in the **REPORT** list, the **TITLE** text highlighted in VLM

The text edition is made using the <^>, <v>, <^>, <^> 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 <^>, <v> 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 the <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 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 printed reports. In the latter case newly introduced text or the amendments made in the old one are ignored.



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

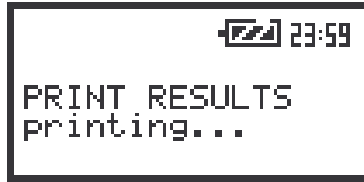
Printing of the measurement results - PRINT RESULTS

The **PRINT RESULTS** (*path: MENU / REPORT / PRINT RESULTS*) position enables the user to print the report on the attached printer. In order to enter this position the user has to select the **PRINT RESULTS** text in the **REPORT** list, using the <^>, <v> (or <^>, <^>) push-buttons and press the <ENTER>.



The view of the display in the *REPORT* list, the PRINT RESULT text highlighted in VLM

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 printer. The instrument returns to the *REPORT* list after transferring all data.

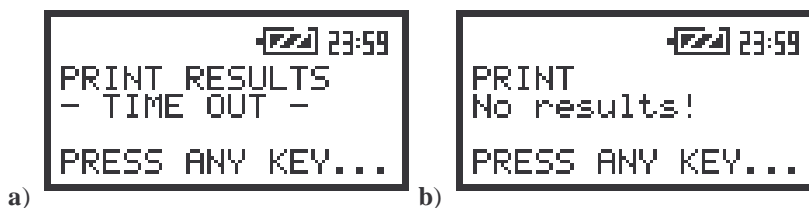
The following message is displayed on the display after the printing, if the **Prompt** parameter was selected in the **EJECT P.** position of the **OPTIONS** sub-list. The user has to answer in this case if the paper in the printer has to be ejected to the new page. The change of the available answers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



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

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

The message about the time limit is displayed in the case when the printer is not connected or there is any other reason that it does not receive the data. The instrument waits for the reaction of the user (any push-button should be pressed except the <SHIFT> 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 printed.



The view of the displays during the results printing 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 print the catalogue of the files stored in the instrument on the attached printer. In order to enter this position the user has to select the **PRINT CATALOGUE** text in the **REPORT** list, using the <^>, <v> (or <◀>, <▶>) push-buttons and press the <ENTER>.



The view of the display in the **REPORT** list, **PRINT CATALOGUE** text highlighted in and VLM

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 printer. 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 printing. The user has to answer in this case if the paper in the printer has to be ejected to the new page. The change of the available answers is possible after pressing the <◀>, <▶> push-buttons. The return to the **REPORT** list is performed after pressing the <ENTER> push-button with the possible ejection of the paper to the new page.

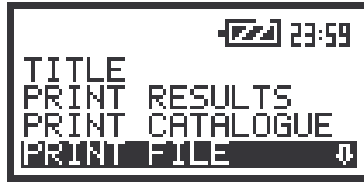
When the catalogue of the files is empty (the measurement results were not saved), the instrument returns to the **REPORT** list without any reaction.



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

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

The **PRINT FILE** (*path: MENU / REPORT / PRINT FILE*) position enables the user to print the contents of the selected file. In order to enter this position the user has to select the **PRINT FILE** text in the **REPORT** list, using the <^>, <v> (or <◀>, <▶>) push-buttons and press the <ENTER>.



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

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 **<◀>**, **<▶>** 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.



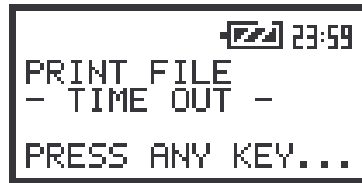
The view of the displays during the selection of the file to be printed

The contents of the selected file is printed on the connected printer after pressing the **<ENTER>** push-button. The following message is displayed on the 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 paper in the printer has to be ejected to the new page. The change of the available answers is possible after pressing the **<◀>**, **<▶>** push-buttons. The return to the *REPORT* list is performed after pressing the **<ENTER>** push-button with the possible ejection of the paper to the new page.

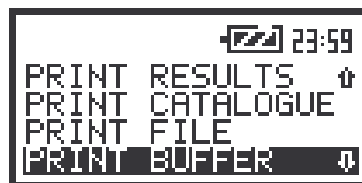


The view of the display during the file printing when there is no data transfer

The message about the time limit is displayed in the case when the printer is not connected or there is any other reason that it does not receive the data. The instrument waits for the reaction of the user (any push-button should be pressed except the <SHIFT> 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 print the contents of the selected file in the buffer. 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

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.



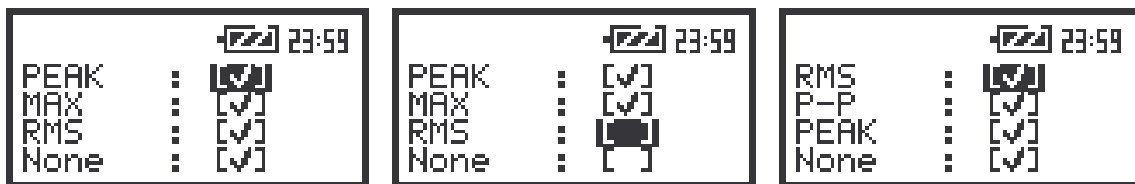
The view of the display in the *REPORT* list, the PRINT BUFFER position when no files were saved

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.



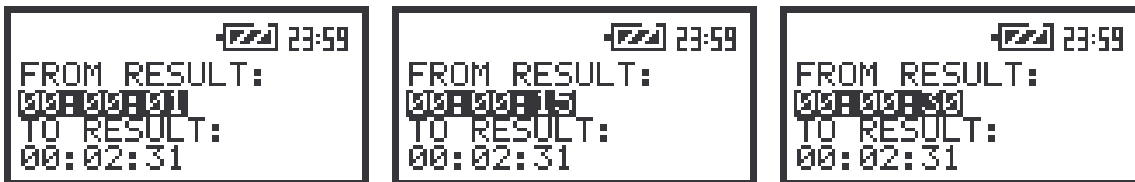
The displays during the selection of the buffer's file for printing (a), (b) and when it is no file in the buffer (c)

The user can select which results from the existed file in the buffer have to be printed 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 printed**, in the **second profile** the **MAX** value was stored in the buffer and it **has to be printed**, in the **third profile** the **RMS** value was stored in the buffer and it **has not to be printed** 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 printed (a) and before leaving this window (b)

The user can select which part of the results stored in the selected file from the buffer should be printed out after pressing once more <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 printing

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 together with the <SHIFT> one (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 printing

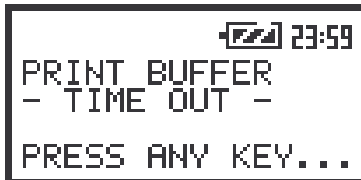
The contents of the selected results from the buffer's file is printed on the connected printer after pressing the <ENTER> push-button. The following message is displayed on the display during the printing:



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 printing. The user has to answer in this case if the paper in the printer has to be ejected to the new page. The change of the available answers is possible after pressing the <◀>, <▶> push-buttons. The return to the **REPORT** list is performed after pressing the <ENTER> push-button with the possible ejection of the paper to the new page.

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



The view of the display during the printing of the file 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 print the coefficients of the user filters sets. 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 printed on the connected printer 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 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 paper in the printer has to be ejected to the new page. The change of the available answers is possible after pressing the <◀>, <▶> push-buttons. The return to the **REPORT** list is performed after pressing the <ENTER> push-button with the possible ejection of the paper to the new page.

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



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

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 way the paper is ejected in the printer (**EJECT P.** position) and select the language of the printed 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 the print out - **FORMAT**

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

The request is displayed on the display after the printing of the measurement results, the catalogue of the files, the contents of the selected file and the contents of the selected file in the buffer (**PRINT RESULTS**, **PRINT CATALOGUE**, **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 paper in the printer has to be ejected to the new page. The change of the available answers is possible after pressing the **<◀ >**, **<▶ >** push-buttons. The return to the **REPORT** list is performed after pressing the **<ENTER>** push-button with the possible ejection of the paper to the new page.

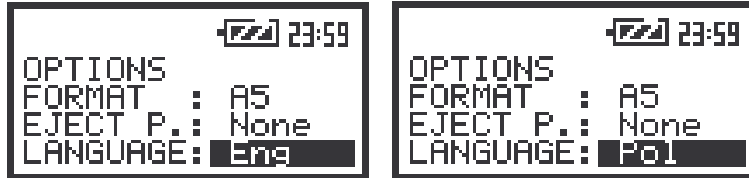


The view of the displays after a printing with the request for the confirmation of the paper ejection (a), (b) and when there is not possible to eject a paper (c)

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