

## 9 SETUP MENU - SETUP

The **SETUP** list contains different sub-lists and positions. Some of them are directly related with sound or vibration measurements, and some - with the settings of the hardware components of the instrument. 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.



Display in the main list; the **SETUP** text highlighted (displayed inversely)

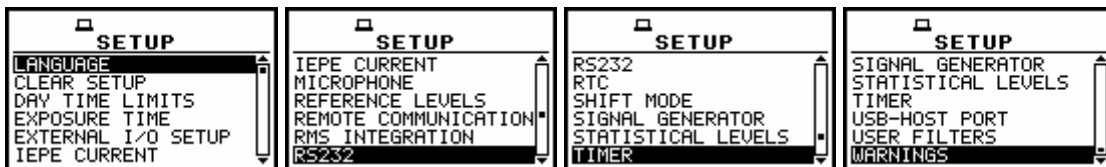
In the **SETUP** list, the following items are available:

<b>LANGUAGE</b>	it enables the user to set language of the user interface.
<b>AEM</b>	this position appears only in <b>AEM</b> mode ( <b>SM</b> ); it enables the user to set the time of first checking of <b>L10</b> level by the instrument and switching on alarm if the level is greater than selected.
<b>CLEAR SETUP</b>	it enables the user to return to the default, factory setup.
<b>DAY TIME LIMITS</b>	it enables the user to select the hours limiting day and night for the calculation of the <b>Lden</b> result.
<b>EXPOSURE TIME</b>	it enables the user to define the exposure time used for the <b>LEPd</b> measurement and other <b>DOSE METER</b> results. This position is taken off from the menu in the vibration meter and voltage (vibration) modes.
<b>EXTERNAL I/O SETUP</b>	it enables the user to select the available functionality of the <b>Ext. I/O</b> port.
<b>HUMAN VIB. FILT.</b>	it enables the user to activate <b>HUMAN VIBRATION FILTERS</b> . This position appears only in vibration modes before activation of those filters.
<b>IEPE CURRENT</b>	it enables the user to choose current IEPE supply.
<b>MICROPHONE</b>	it enables the user to set on or off the compensation filter and/or outdoor filter and select in the latter case its type. This position is taken off from the menu in the vibration meter and voltage (vibration) mode.
<b>REFERENCE LEVELS</b>	it enables the user to select the reference level for the vibration measurements and it informs the user about the reference level in the sound measurements.
<b>REMOTE COMMUNICATION</b>	it enables the user to select the type of remote communication and packet size for data transmission.
<b>RMS INTEGRATION</b>	it enables the user to select the way of integration for the "family" of the <b>LEQ</b> measurements.
<b>RPM MEASUREMENT</b>	it enables the user to activate the <b>RPM</b> (Revolution Per Minute) measurement option. This position does not appear after activation of the function.
<b>RS232</b>	it enables the user to set the transmission speed and the timeout in the RS232 interface.
<b>RTC</b>	it enables the user to set the <b>Real Time Clock</b> .
<b>RT60 AVERAGING</b>	this position appears only in <b>RT60</b> mode it enables the user to switch on and reset averaging and it informs the user how many measurement were taken to the averaging process calculation

<b>RT60 OPTIONS</b>	context position (appears only in case of <b>RT60</b> measurements) it enables the user to set the auxiliary parameters of RT 60 mode
<b>RT60 RESULTS</b>	this position appears only in case of <b>RT60</b> mode, it enables the user set which of the reverberation time results ( <b>EDT, RT20, RT30</b> ) will be presented in the visualization levels to each 1/3 octave band:
<b>SHIFT MODE</b>	it enables the user to set the operating mode of the <b>&lt;SHIFT&gt;</b> and the <b>&lt;START / STOP&gt;</b> push-buttons.
<b>SIGNAL GENERATOR</b>	it enables the user to activate <b>SIGNAL GENERATOR</b> function.
<b>STATISTICAL LEVELS</b>	it enables the user to select ten statistic levels to be displayed in one profile and 3 PROFILES modes and saved in the files with the main results. This position is taken off from the menu in the vibration meter and voltage (vibration) modes.
<b>TIMER</b>	it enables the user to set the Timer function.
<b>TONALITY</b>	this position appears only in <b>TONALITY</b> mode, it enables the user to set the parameters of tonality measurements
<b>USB-HOST PORT</b>	it enables the user to select the available functionality of the <b>USB Host</b> port.
<b>USER FILTERS</b>	it enables the user to select and set the correcting values for all real-time and 1/1 and 1/3 octave filters.
<b>VIBRATION UNITS</b>	it enables the user to select the vibration units in which the results of the measurements are to be given. This position is taken off from the menu in the sound meter and voltage (sound) mode.
<b>WARNINGS</b>	it enables the user to switch on or off the warnings that 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 **<v>** (or **<SHIFT>** and **<v>**) – results in a movement to the last position of the opened list.

In each available position any change is performed by means of the **<^>**, **<v>** 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.



SETUP list in the SM



**Notice:** The abbreviation **SM** – **Sound Mode** refers to the sound modes (**SOUND METER** and **VOLTAGE (SOUND)**) and the proper functions dedicated for the measurement and analysis of the acoustic signal: **LEVEL METER, 1/1 OCTAVE, 1/3 OCTAVE, FFT, DOSEMETER, TONALITY, LOUDNESS, RT60, AEM** and **ENVELOPING**; **VM** – **Vibration Mode** refers to the vibration modes (**VIBRATION METER** and **VOLTAGE (VIBR.)**) and the proper functions dedicated for the measurement and analysis of the vibration signal: **LEVEL METER, 1/1 OCTAVE, 1/3 OCTAVE, FFT, RPM** and **ENVELOPING**.



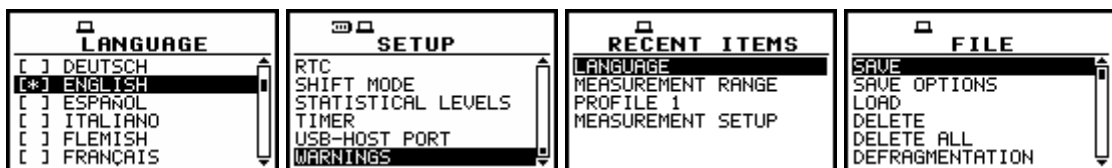
SETUP list in the VM

## 9.1 Setting the language of the user interface - LANGUAGE

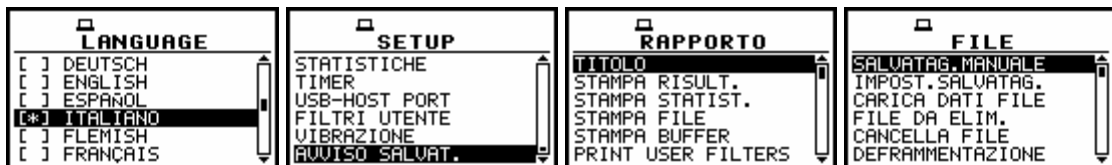
The **LANGUAGE** enables one to select the language of the user interface. In order to enter the list one has to press the **<ENTER>** push-button on the inversely displayed **LANGUAGE** text of the **SETUP** list. The selection is made by placing a special character by means of the **<↑>**, **<↓>** push-buttons in the line with the selected language. 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. The selection is confirmed and the list is closed after pressing the **<ENTER>** push-button. The list is closed without any confirmation after pressing the **<ESC>** push-button.



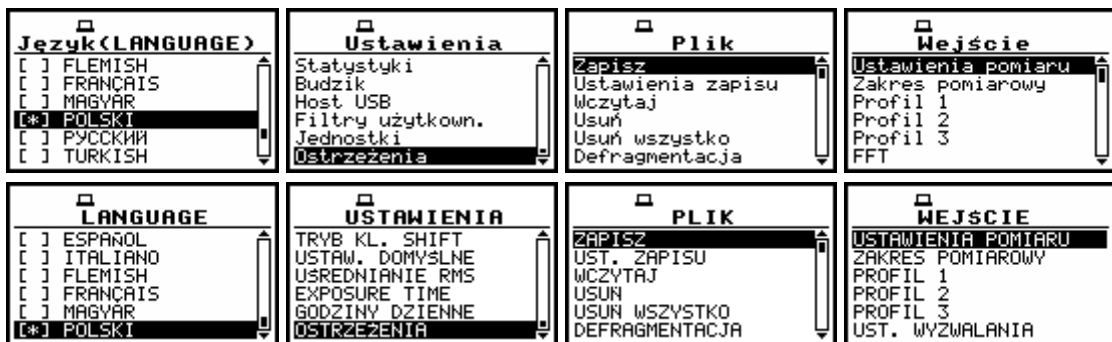
SETUP list; the LANGUAGE text highlighted (displayed inversely)



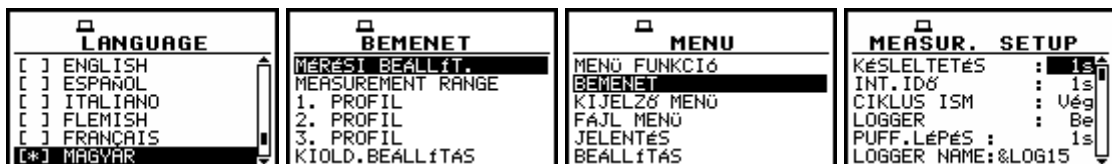
Displays with the English version of the user interface



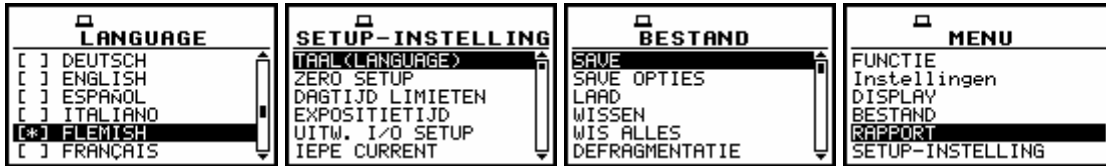
Displays with the Italian version of the user interface



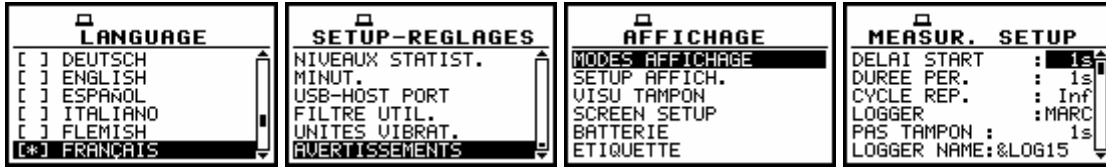
Displays with the Polish version of the user interface



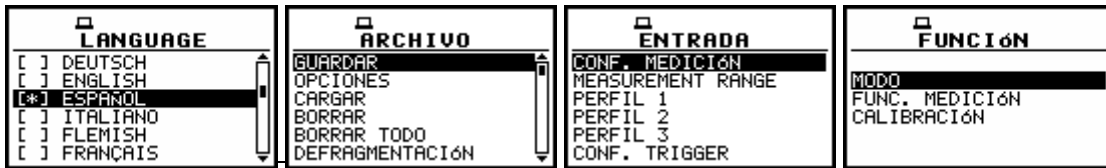
Displays with the Hungarian version of the user interface



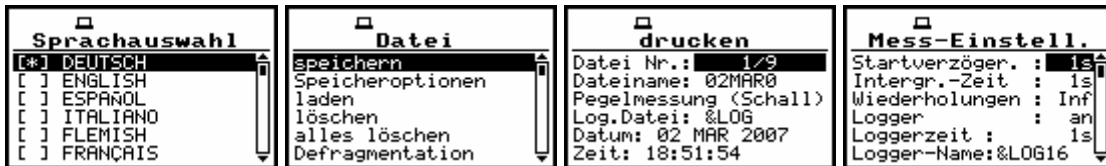
Displays with the Flemish version of the user interface



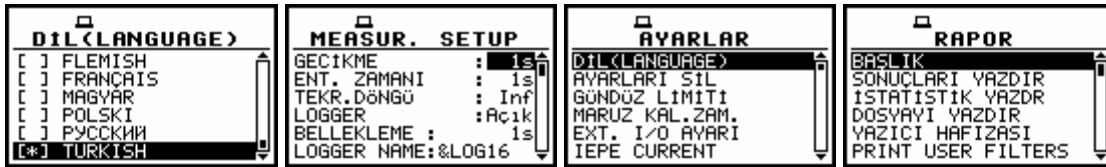
Displays with the French version of the user interface



Displays with the Spanish version of the user interface



Displays with the German version of the user interface

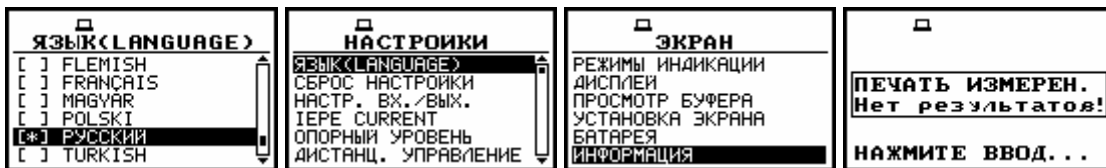


Displays with the Turkish version of the user interface

For activation of the Russian version of the user interface, the special code has to be entered.



Displays during the entering of the access code to the Russian version of the user interface



Displays with the Russian version of the user interface available only on some markets

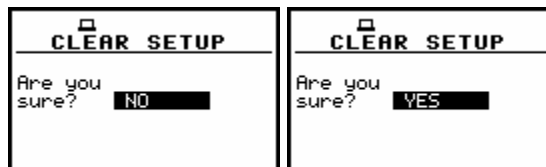
## 9.2 Return to the factory settings - CLEAR SETUP

The **CLEAR SETUP** enables the user to return to the default set up of the instrument. In order to enter the position the user has to select the **CLEAR SETUP** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



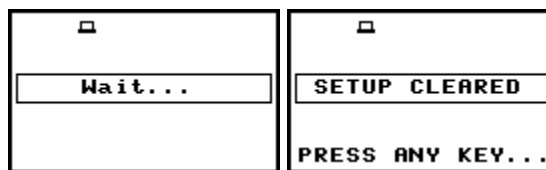
SETUP list; the **CLEAR SETUP** text highlighted (displayed inversely)

After entering this position, the request for the confirmation is displayed. 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.



Displays with the request for the confirmation for the **CLEAR SETUP** execution

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

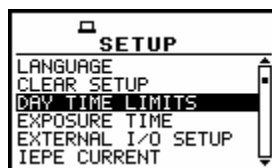


Displays during and after the execution of the **CLEAR SETUP** function

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

## 9.3 Day time limits selection - DAY TIME LIMITS

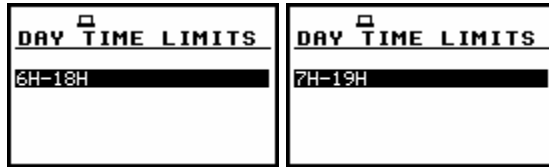
The **DAY TIME LIMITS** enables the user to select the required by the local standards determination of the day and night. These limits are used for the calculation of the **Lden** function (cf. App. D for the definition). In order to enter the window the user has to select the **DAY TIME LIMITS** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



SETUP list with the **DAY TIME LIMITS** text highlighted (displayed inversely)

Two options are available: **6H-18H** and **7H-19H**. The required limits can be selected by means of the <◀>, <▶> push-buttons.

The window 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).

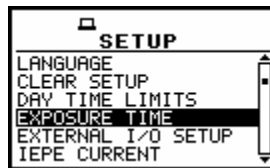


Displays with the available DAY TIME LIMITS

### 9.4 Exposure time setting - EXPOSURE TIME

The **EXPOSURE TIME** enables the user to set the desired value of the exposure time that is used for the calculation of different **DOSE METER** functions as well as **LEPd** that is also calculated in the **LEVEL METER** mode (cf. App. D for the definitions of the functions).

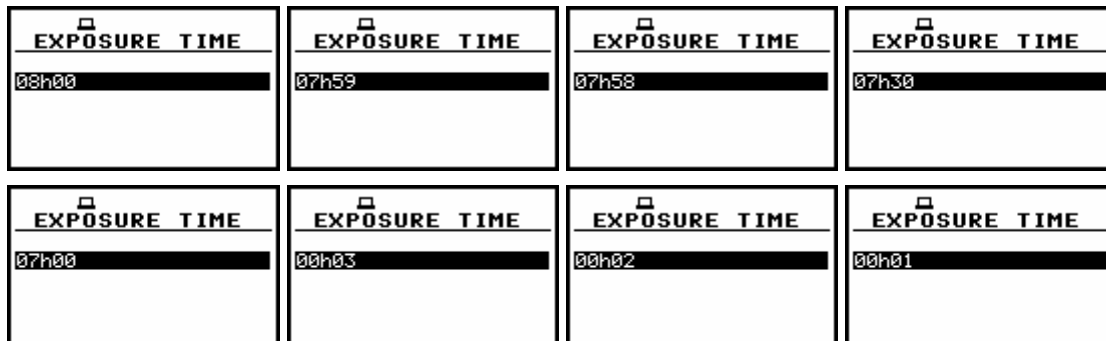
In order to enter the window the user has to select the **EXPOSURE TIME** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>. This sub-list is available only in the sound mode; in vibration and voltage (vibration) modes it is taken off from the **SETUP** list.



SETUP list with the EXPOSURE TIME text highlighted (displayed inversely)

The **EXPOSURE TIME** values are within the range [00h01, 08h00]. The required value can be set using the <◀> / <▶> push-buttons – after each pressing the exposure time is decremented / incremented by one second. The step can be decremented / incremented up to 30 minutes after pressing the <◀> / <▶> push-buttons together with the <SHIFT> one.

The window 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-buttons (ignoring a change made in the position).



EXPOSURE TIME windows

## 9.5 Setting parameters of the Ext. I/O port - EXTERNAL I/O SETUP

The **EXTERNAL I/O SETUP** enables the user to select the available functionality of the **Ext. I/O** port. In order to enter the window the user has to select the **EXTERNAL I/O SETUP** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER> one.



SETUP list, the **EXTERNAL I/O SETUP** text highlighted

In order to select a value in a position of the sub-list the <◀>, <▶> should be pressed. The position of the sub-list is changed after pressing 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.

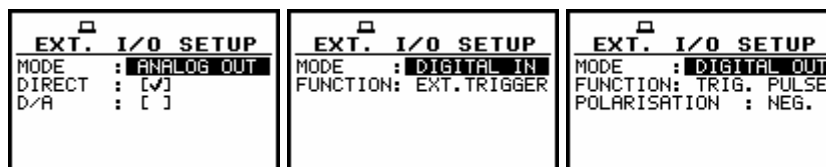
### 9.5.1 Mode selection of the Ext. I/O port - MODE

In the **MODE**, it is possible to select the function of the instrument's socket named as **Ext. I/O**. This socket can be used as

- the output of the analogue signal (**ANALOG OUT**) transmitted from the input of the instrument to its output without any digital processing (i.e. filtering),
- the input of the digital signal used as an external trigger to start the measurements (**DIGITAL IN**) in the "slave" instrument,
- the digital output (**DIGITAL OUT**) used for triggering other "slave" instrument from the "master" one,
- the source of any alarm signal in the case of certain circumstances occurred during the measurements (i.e. the level of the input signal was higher than selected one).

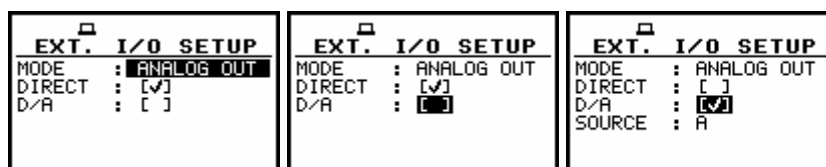
The more detailed description of the **Ext. I/O** is given in App. C.

To select the mode, the user has to use the <◀>, <▶> push-buttons in the line with the **MODE** text. The window is closed and the instrument returns to the **SETUP** list after pressing the <ENTER> (with the confirmation of all changes made there) or <ESC> push-buttons (ignoring all changes).

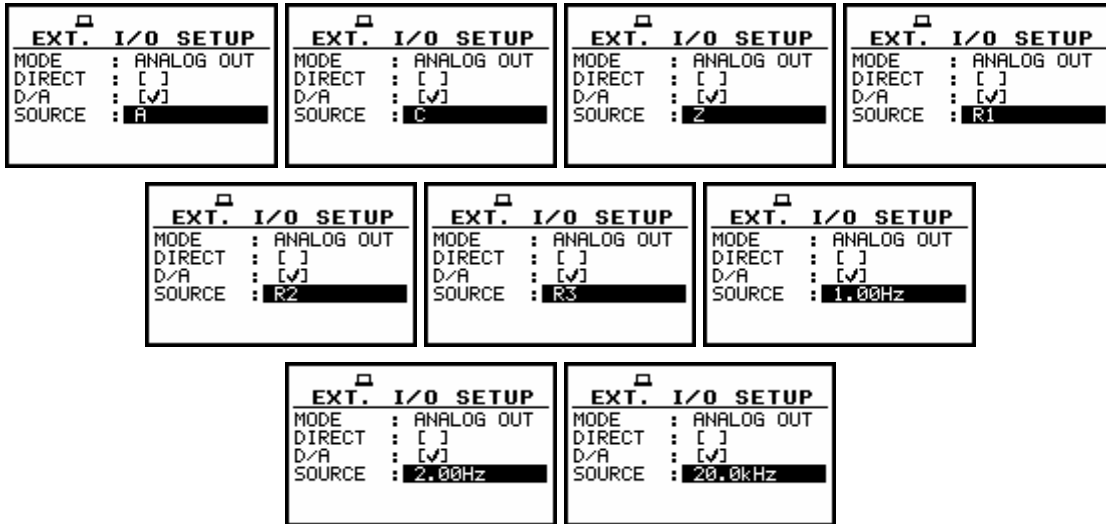


EXTERNAL I/O SETUP windows; the **MODE** selection

In the case of **ANALOG OUT** selection there are two options **DIRECT** and **D/A (Digital/Analog)**. To select the option the user has to place a special character in the line with the option's name using <◀>, <▶> and <▲>, <▼> push-buttons. In the case of **D/A** option the **SOURCE** position appears on the display. The available sources are as follows: **A, C, Z, R1, R2, R3, 1 Hz, 2 Hz, ..., 20 Hz**. The selection of the **SOURCE** is made by means of <◀>, <▶> push-buttons and pressing <ENTER>.

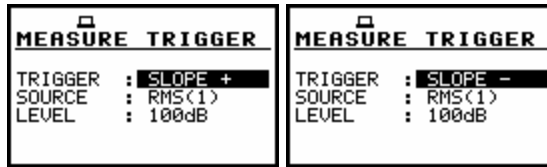


EXTERNAL I/O SETUP windows; **D/A** selection



EXTERNAL I/O SETUP windows; the source selection for D/A option

In the case of **DIGITAL IN** selection the signal appearing on the **I/O** socket will be treated as the external trigger if the **EXT. I/O** is chosen (path: *MENU / INPUT / TRIGGER SETUP / MEASURE TRIGGER / SOURCE / EXT. I/O*) and it can be set only if **SLOPE +** or **SLOPE -** was set as a **TRIGGER** (path: *MENU / INPUT / TRIGGER SETUP / MEASURE TRIGGER / TRIGGER*).

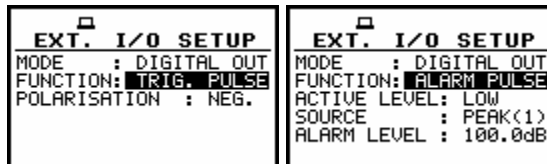


MEASURE TRIGGER windows; the TRIGGER selection

### 9.5.2 Digital output function selection of the I/O socket - FUNCTION

In the **FUNCTION**, it is possible to set the function of the digital output of the **I/O** instrument's socket. The socket can be used as the source of the trigger pulse (**TRIG. PULSE**) which starts the measurement in another "slave" instrument linked to the "master" one or the alarm signal which appears there after fulfilling certain measurement conditions (**ALARM PULSE**).

In order to select the function of the digital output the user has to use the <◀>, <▶> push-buttons in the active line with the **FUNCTION** text. The window is closed and the instrument returns to the **SETUP** list after pressing the <ENTER> (with the confirmation of all changes made there) or <ESC> push-buttons (ignoring all changes).

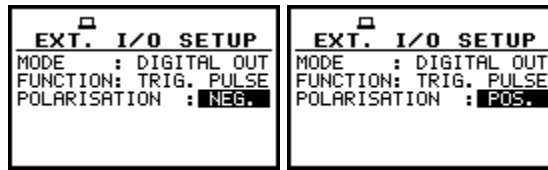


EXTERNAL I/O SETUP windows; the FUNCTION selection

### 9.5.3 Polarisation selection of the digital output signal - POLARISATION

In the **POLARISATION**, it is possible to select which polarisation of the signal (negative or positive) will be valid.

In order to select the polarisation the user has to use the <◀>, <▶> push-buttons in the active line with the **POLARISATION** text. The window is closed and the instrument returns to the **SETUP** list after pressing the <ENTER> (with the confirmation of all changes made there) or <ESC> push-buttons (ignoring all changes).

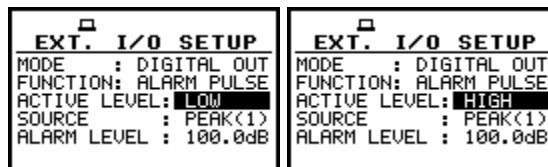


EXTERNAL I/O SETUP windows; the POLARISATION selection

#### 9.5.4 Active level selection of the digital output signal - ACTIVE LEVEL

In the **ACTIVE LEVEL**, it is possible to select which level of the signal should be treated as a valid one ("negative" or "positive" logic).

In order to select the level the user has to use the <◀>, <▶> push-buttons in the active line with the **ACTIVE LEVEL** text. The window is closed and the instrument returns to the **SETUP** list after pressing the <ENTER> (with the confirmation of all changes made there) or <ESC> push-buttons (ignoring all changes).

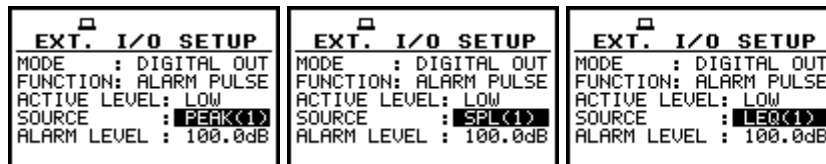


EXTERNAL I/O SETUP windows; the ACTIVE LEVEL selection

#### 9.5.5 Source signal selection for the alarm pulse generation - SOURCE

In the **SOURCE**, it is possible to select the measurement result which level should be checked. If the measured result level is greater than selected alarm level – the instrument will generate alarm signal on the I/O socket. The measurement results from the first profile: **PEAK(1)**, **SPL(1)** or **LEQ(1)** can be used for the purpose described above.

In order to select the function of the digital output the user has to use the <◀>, <▶> push-buttons in the active line with the **SOURCE** text. The window is closed and the instrument returns to the **SETUP** list after pressing the <ENTER> (with the confirmation of all changes made there) or <ESC> push-buttons (ignoring all changes).



EXTERNAL I/O SETUP windows; the SOURCE selection

#### 9.5.6 Alarm level selection on the digital output of I/O - ALARM LEVEL

In the **ALARM LEVEL**, it is possible to set the level of the result to be monitored during the measurements. If the result is greater than the one set in this line, the instrument will generate the alarm signal in the selected logic. The available levels are within the range [30.0 dB, 140 dB].

The **ALARM LEVEL** current value decreasing / increasing by 0.1 dB is possible by means of the <◀> / <▶> push-buttons. The step can be decreased / increased up to 1 dB after pressing simultaneously the <◀> / <▶> push-buttons with the <SHIFT> one. The window is closed and the instrument returns to the **SETUP** list after pressing the <ENTER> (with the confirmation of all changes made in the window) or <ESC> push-buttons (ignoring all changes).



EXTERNAL I/O SETUP windows; the ALARM LEVEL setting

## 9.6 Activation of human vibration filters - HUMAN VIB. FILT.

In the **HUMAN VIBR. FILT.** it is possible to activate the human vibration filters (**W-Bxy, W-Bz, H-A, W-Bc, Wk, Wd, Wc, Wj, Wm, Wh, Wg, Wb**), which are not included in the standard set of the instrument. This option can be bought together with the instrument or can be purchased by the user in the future. In the latter case, after selecting the **HUMAN VIB. FILT.** text in the **SETUP** list (in vibration modes), using the <▲>, <▼> (or <◀>, <▶>) push-buttons, and pressing <ENTER>, the user has to introduce special code for activation of the function. After successful activation the **HUMAN VIBRATION** filters, this text does not appear on the **SETUP** list any more and the instrument never more asks for the code.



SETUP list, the HUMAN VIB. text highlighted (displayed inversely)



Displays during the entering of the access code to a function

## 9.7 Selection of the current IEPE supply - IEPE CURRENT

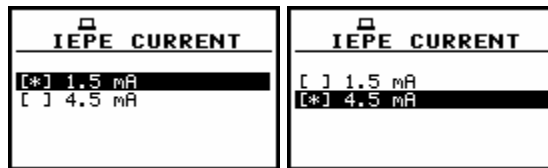
The **IEPE CURRENT** enables the user to choose current IEPE supply.

In order to enter the window the user has to select the **IEPE CURRENT** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER> one.



SETUP list, the **IEPE CURRENT** text highlighted (displayed inversely)

Two options are available: **1.5 mA** and **4.5 mA**. The selection is made by placing a special character in the required position by means of the <◀>, <▶> (or <▲>, <▼>) push-buttons. The window 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-buttons (ignoring a change made in the position).



IEPE CURRENT windows; the IEPE supply selection

## 9.8 Selection of the microphone parameters - MICROPHONE

The **MICROPHONE** position is available only in the case of the sound measurements (in the **MODE** sub-list the **SOUND METER** or **VOLTAGE (SOUND)** position is selected). It enables the user to set on or off the compensation filter and/or outdoor filter, select in the latter case its type and to set the proper conditions for making the measurements in the diffuse field. In order to enter the window the user has to select the **MICROPHONE** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER> one.



SETUP list, the **MICROPHONE** text highlighted (displayed inversely)

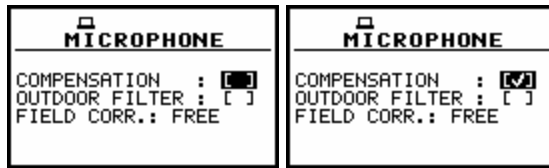
In order to select a value in a position of the sub-list the <◀>, <▶> should be pressed. The position of the sub-list is changed after pressing the <▲>, <▼> push-buttons. In order to confirm the selection the <ENTER> push-button has to be pressed. Such pressing closes the sub-list. After pressing the <ESC> push-button the sub-list is also closed but all changes, which were made, are ignored.

### 9.8.1 Switching on or off the compensation filter - COMPENSATION

In the **COMPENSATION**, it is possible to switch on or off the compensating filter, which was designed taking into account the average frequency characteristic of the microphones supplied with the instrument. The frequency characteristic of the designed filter is given in App. D. This filter compensates the non-linearity of the microphone's frequency characteristic.

In order to switch the filter on the user has to place, by means of the <◀>, <▶> push-buttons, the special character in the line with the **COMPENSATION** text. The window is closed and the instrument

returns to the **SETUP** list after pressing the **<ENTER>** (with the confirmation of all changes made there) or **<ESC>** push-button (ignoring all changes).

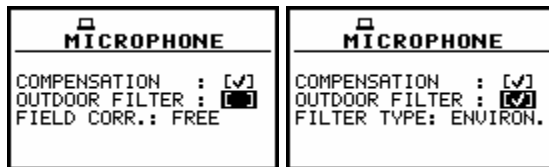


**MICROPHONE windows; the activation of the COMPENSATION filter**

### 9.8.2 Switching on or off the outdoor filter - OUTDOOR FILTER

In the **OUTDOOR FILTER**, it is possible to switch on or off the compensating filter, which was designed taking into account the average frequency characteristic of the microphones supplied with the instrument working with the special waterproof screen used in the permanent monitoring environmental or airport applications.

In order to switch the filter on the user has to place, by means of the **<◀>**, **<▶>** push-buttons, the special character in the line with the **OUTDOOR FILTER** text. The window is closed and the instrument returns to the **SETUP** list after pressing the **<ENTER>** (with the confirmation of all changes made there) or **<ESC>** push-buttons (ignoring all changes).

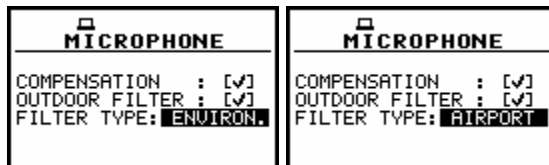


**MICROPHONE windows; the activation of the OUTDOOR FILTER**

### 9.8.3 Selection the type of the outdoor filter - FILTER TYPE

In the **FILTER TYPE**, it is possible to select the type of the compensating filter, which has to be used in the permanent outdoor monitoring application. The characteristics of the outdoor filters depend on the application: environmental (the acoustic signal is perpendicular to the microphone's grid) or airport (the acoustic signal is parallel to the microphone's grid). The frequency characteristic of the designed filters is given in App. D.

The selection is possible by means of the **<◀>**, **<▶>** push-buttons pressed in the active line with the **FILTER TYPE** text. The window is closed and the instrument returns to the **SETUP** list after pressing the **<ENTER>** (with the confirmation of all changes made there) or **<ESC>** push-button (ignoring all changes).



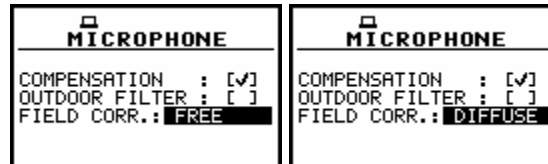
**MICROPHONE windows; the activation of the OUTDOOR FILTER**

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

The **FIELD CORRECTION** enables the user to set the proper conditions for making the measurements in the diffuse field. In the **FIELD CORRECTION** position two options are available: **FREE** (for the measurement performed in the free field conditions) and **DIFFUSE** (for the measurement

performed in the diffuse field conditions). The microphone supplied with the **SVAN 959** instrument (GRAS 40AE) is designed for the measurement performed in the free field conditions.

In order to make the measurements in the diffuse field conditions the user has to switch on an additional correcting filter. The frequency characteristic of this filter is given in App. D. The **FREE** option selection means that the correcting filter for the diffuse field conditions is switched off. In the case of the measurements performed with the use of the microphones for the diffuse field conditions the option **DIFFUSE** should never be used.



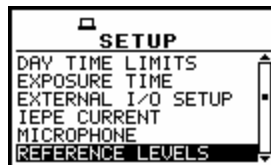
**MICROPHONE windows; selection of the FIELD CORRECTION**

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

## 9.9 Reference signal in vibration measurements - REFERENCE LEVELS

The **REFERENCE LEVELS** sub-list enables the user to set the reference level of the vibration signal or to inform the user about the reference level in the case of sound measurements. 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 the position the user has to select the **REFERENCE LEVELS** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER> one. The selection of a parameter which level has to be set is done by means of the <▲>, <▼> push-buttons.

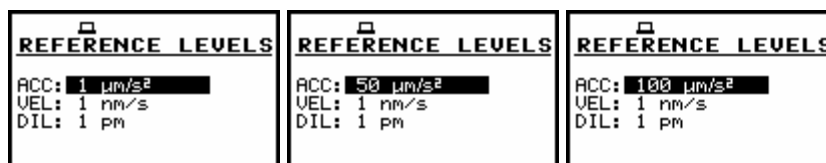


**SETUP list, the REFERENCE LEVELS text highlighted (displayed inversely)**

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

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

In order to confirm the setting the <ENTER> push-button has to be pressed. Such pressing closes the sub-list. After pressing the <ESC> push-button the sub-list is also closed but all changes, which were made, are ignored.

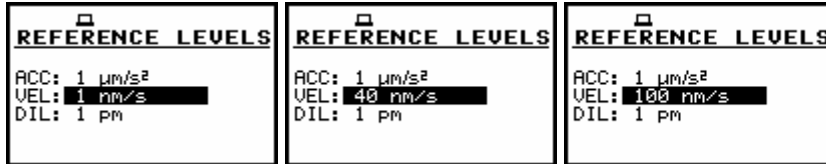


**REFERENCE LEVELS windows; the reference level setting of acceleration signal**

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

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

In order to confirm the setting the **<ENTER>** push-button has to be pressed. Such pressing closes the sub-list. After pressing the **<ESC>** push-button the sub-list is also closed but all changes, which were made, are ignored.

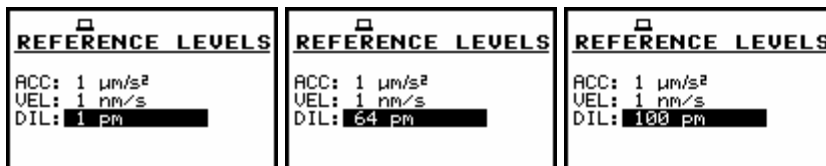


REFERENCE LEVEL windows; setting the reference level of velocity signal

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

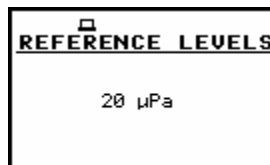
In the **DIL** position, the user can set the reference level of the displacement signal. It is possible to set this level from 1 pm to 100 pm with 1 pm step pressing the **<◀>**, **<▶>** push-buttons. The step can be increased to 10 pm pressing the **<SHIFT>** with the **<◀>**, **<▶>** push-buttons.

In order to confirm the setting the **<ENTER>** push-button has to be pressed. Such pressing closes the sub-list. After pressing the **<ESC>** push-button the sub-list is also closed but all changes, which were made, are ignored.



REFERENCE LEVELS windows; setting the reference level of displacement signal

In the case of sound measurements the **REFERENCE LEVELS** sub-lists is used only to inform the user that the reference level of the acoustic signal is equal to  $20 \mu\text{Pa}$ . After pressing the **<ESC>** or **<ENTER>** push-buttons the sub-list is closed.



REFERENCE LEVELS windows; the reference level of the acoustic signal

## 9.11 Parameters of remote communication - REMOTE COMMUNICATION

The **REMOTE COMMUNICATION** enables the user to select the type and set the packet size of the packet communication.

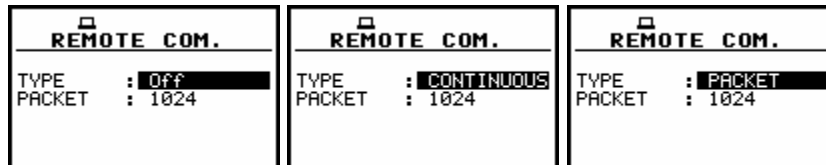
In order to enter the position the user has to select the **REMOTE COMMUNICATION** text in the **SETUP** list, using the **<▲>**, **<▼>** (or **<◀>**, **<▶>**) push-buttons and press the **<ENTER>**.



SETUP list, the **REMOTE COMMUNICATION** text highlighted (displayed inversely)

## 9.12 Selecting the type of remote communication - TYPE

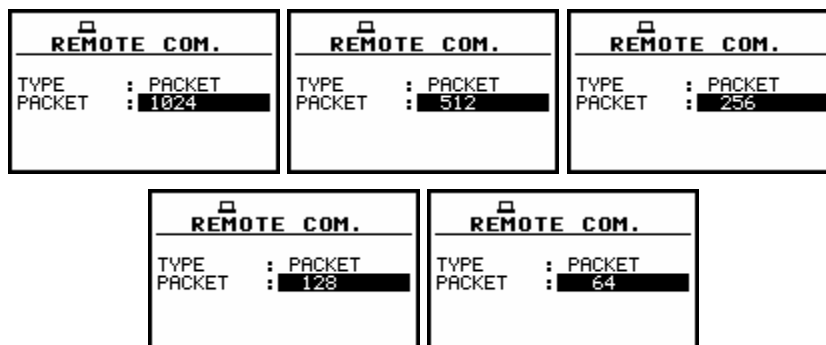
The **TYPE** enables the user to select the type of the **REMOTE COMMUNICATION**. Three options are available: **Off**, **CONTINUOUS** and **PACKET**. The selection of the required option is made by <◀>, <▶> push-buttons. The confirmation is made by pressing <ENTER> push button.



REMOTE COMMUNICATION windows; the **TYPE** selection

### 9.12.1 Setting the packet size of the remote communication - PACKET

In the case of the **PACKET** type it is possible to select the packet size. The available options are **1024**, **512**, **256**, **128** and **64**. The selection is made by the <◀>, <▶> push-buttons. The confirmation is made by pressing the <ENTER> push button.



REMOTE COMMUNICATION windows; packet size selection

## 9.13 Detector's type selection in the LEQ calculations - RMS INTEGRATION

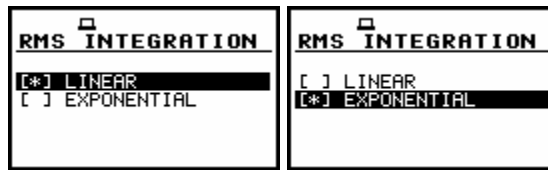
The **RMS INTEGRATION** enables the user to select the detector type for the calculations of the **LEQ**, **Lden**, **LEPd**, **Lxx** and **SEL** functions.

In order to enter the position the user has to select the **RMS INTEGRATION** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>.



SETUP list with the **RMS INTEGRATION** text highlighted (displayed inversely)

Two options are available: **LINEAR** and **EXPONENTIAL**. The required parameter can be selected by means of the <▲>, <▼> (or <◀>, <▶>) push-buttons. The window 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-buttons (ignoring a change made in the position).



Displays and with the available options of the RMS INTEGRATION

The formulae used for the **LEQ** calculation are given in Appendix D. Setting **LINEAR** is required for getting the true RMS value of the measured signal. When this option is selected the value of the **LEQ**, **Lden**, **LEPd**, **Lxx** and **SEL** functions do not depend on the detector time constant: **Fast**, **Slow** or **Impulse** (the results are displayed **without** the indicator of the detectors selected in the profiles). In this case, the indicator **Lin.** (or **L**) is displayed in the different modes of the result presentation.

Setting **EXPONENTIAL** enables the user to fulfil the requirements of another standard for the **LEQ** measurements. When this option is selected the value of the **LEQ**, **Lden**, **LEPd**, **Lxx** and **SEL** function depends on the detector time constant (the results are displayed **with** the indicator of the detectors selected in the profiles (*path: MENU / INPUT / PROFILE x / DETECTOR: Fast, Slow or Impulse*)).

### 9.14 Activation of RPM measurement function - RPM MEASUREMENT

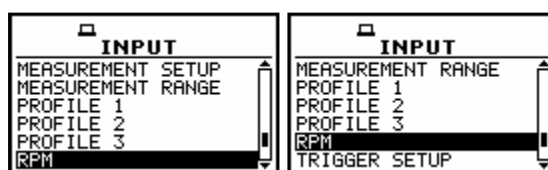
The **RPM MEASUREMENT** (**RPM** - Revolutions Per Minute) position enables the user to activate the **RPM** measurement function, which is not included in the standard set of the instrument. It can be bought together with the instrument or can be purchased by the user in the future. In the latter case, after selecting the **RPM MEASUREMENT** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons, and pressing <ENTER>, the user has to introduce special code for activation of the function. After successful activation the **RPM MEASUREMENT**, this text does not appear on the **SETUP** list any more (**RMP** position appears then in the **INPUT** list) and the instrument never more asks for the code.



SETUP list, the RPM MEASUREMENT text highlighted (displayed inversely)



Displays during the entering of the access code to a function



INPUT list after activation of the RPM MEASUREMENT function

## 9.15 Setting the parameters of the serial interface - RS232

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

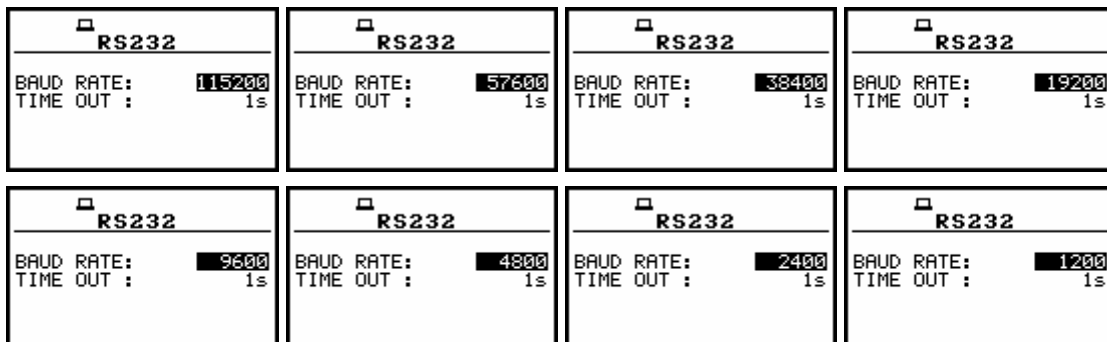


SETUP list, the RS232 text highlighted (displayed inversely)

### 9.15.1 Setting the transmission speed of the serial interface - BAUD RATE

The RS 232 interface transmission (**BAUD RATE**) speed can be selected from the following available values: **1200** (bits / second), **2400** (bits / s), **4800** (bits / s), **9600** (bits / s), **19200** (bits / s), **38000** (bits / s), **57600** (bits / s) or **115200** (bits / s). The selection is made by means of the **<^>**, **<v>** push-buttons.

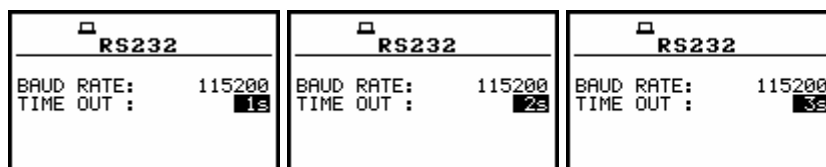
The other RS 232 transmission parameters are fixed to **8 bits for data, No parity & 1 Stop bit**. The selected value has to be confirmed by pressing the **<ENTER>** push-button, which causes the simultaneous return to the **SETUP** list. All settings are ignored after the return to the **SETUP** list by pressing the **<ESC>** push-button.



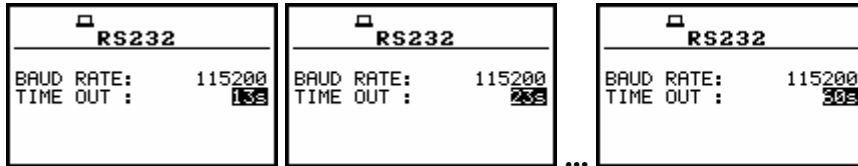
RS232 windows; the possible settings of the BAUD RATE

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

The **TIME OUT** value shown in the inversely displayed line is increased or decreased by one with each pressing the **<^>**, **<v>** push-buttons. The step is increased / decreased to ten after pressing the **<^>**, **<v>** push-buttons together with the **<SHIFT>** one. The default value of this parameter is equal to one but it can be too short period for the printers, which are not too fast. In such case, the **TIME OUT** parameter has to be increased. The window is closed and the instrument returns to the **SETUP** list after pressing the **<ENTER>** (with the confirmation of all changes made in the window) or **<ESC>** push-buttons (ignoring all changes made there).



RS232 window; the setting of the TIME OUT with 1-second step



RS232 window; the setting of the TIME OUT with 10-seconds step

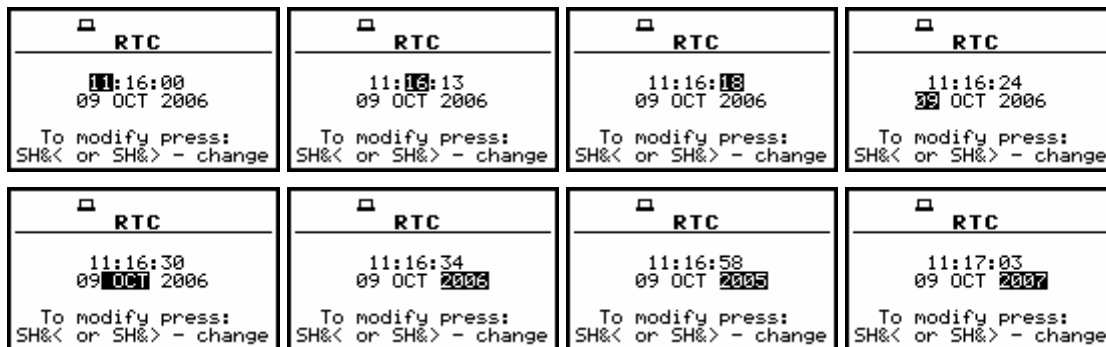
## 9.16 Programming the instrument's internal Real Time Clock - RTC

The **RTC** enables one to programme the internal **Real Time Clock**. This clock is displayed in the different places depending on the selected presentation mode. In order to enter the position the user has to select the **RTC** text in the **SETUP** list, using the <^>, <v> (or <^>, <v>) push-buttons and press the <ENTER> one.



SETUP list, the RTC text highlighted (displayed inversely)

The selection of the setting parameter (hour, minute, second, day, month and year) is performed using the <^>, <v> push-buttons and the change of its value – using the <^>, <v> push-buttons pressed together with the <SHIFT>.



RTC windows with the different parameters to be set



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

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

## 9.17 RT 60 averaging function - RT60 AVERAGING

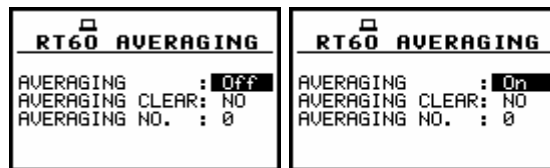
The **RT60 AVERAGING** appears in the **SETUP** list when the **RT60** function is selected in the **MEASUREMENT FUNCTION** window (*path: MENU / FUNCTION / MEASUREMENT FUNCTION*)

/RT60). It is available only in sound modes. This window is opened after the selection of the **RT60 AVERAGING** text from the **SETUP** list by means of the <▲>, <▼> (or <◀>, <▶>) push-buttons and pressing the <ENTER> one.

The **RT60 AVERAGING** contains three positions: **AVERAGING**, **AVERAGING CLEAR** and **AVERAGING NO.**

### 9.17.1 RT 60 averaging - AVERAGING

In the **AVERAGING** position, the user can switch on averaging option for the **RT60** measurements. The activation is made by setting of **On** text in the **AVERAGING** line by means of the <◀>, <▶> push-buttons. The confirmation of the activation requires pressing the <ENTER> push-button, which simultaneously closes the window. The **RT60 AVERAGING** window is closed ignoring any changes made in there, after pressing any time the <ESC> push-button.

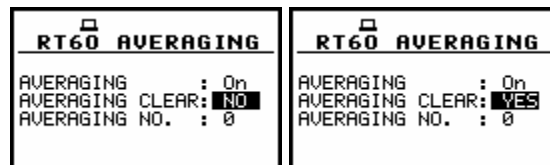


RT60 AVERAGING window; the AVERAGING activation

### 9.17.2 Resetting the averaging process - AVERAGING CLEAR

The **AVERAGING CLEAR** enables the user to reset the averaging process. All averaged results are lost if not saved. In this position two options are available **YES (clear)** and **NO**.

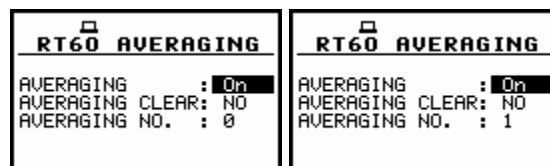
The selection is made by means of the <◀>, <▶> push-buttons. The confirmation of the selection requires pressing the <ENTER> push-button, which simultaneously closes the window. The **RT60 AVERAGING** window is closed ignoring any changes made in there, after pressing any time the <ESC> push-button.



RT60 AVERAGING window; the AVERAGING CLEAR selection

### 9.17.3 RT 60 averaging number - AVERAGING NO.

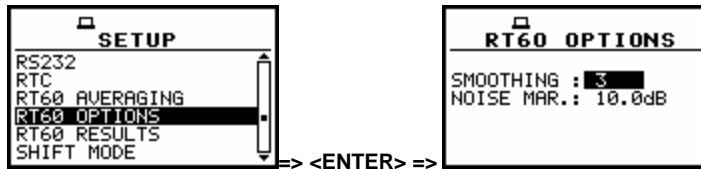
This line is only for indicating purpose. It shows how many measurements were taken to the averaging process calculation. The position is not accessible. The **RT 60 AVERAGING** window is closed ignoring any changes made in there, after pressing any time the <ESC> push-button.



RT60 AVERAGING window; the change of AVERAGING NO. after measurement (position is not accessible)

## 9.18 Setting the auxiliary parameters of RT 60 mode - RT60 OPTIONS

The **RT60 OPTIONS** is accessible in the **SETUP** list in the **SOUND METER** mode when the **RT60** function is selected in the **MEASUREMENT FUNCTION** window (*path: MENU / FUNCTION / MEASUREMENT FUNCTION / RT60*). This sub-list is opened after the selection of the **RT60 OPTION** text from the **SETUP** list by means of the <^>, <v> (or <^>, <v>) push-buttons and pressing the <ENTER> one. The **RT60 OPTIONS** consists of two parameters, which influence the calculation of the **RT60** measurements results: **SMOOTHING** and **NOISE MAR.**



RT60 selected in the SETUP list and the RT60 OPTIONS window opened

### 9.18.1 Setting the sound pressure level decay curve averaging - SMOOTHING

In the **SMOOTHING** position, the user can set the parameter of decay curve averaging. In this position available values are from 0 to 15. The selection is made by means of the <^>, <v> push-buttons with step equal to 1 or by means of the <^>, <v> push-buttons pressed together with the <SHIFT> one with the step equal to 5. The confirmation of the selection requires pressing the <ENTER> push-button, which simultaneously closes the window. The **RT60 OPTION** window is closed ignoring any changes made in there, after pressing any time the <ESC> push-button.



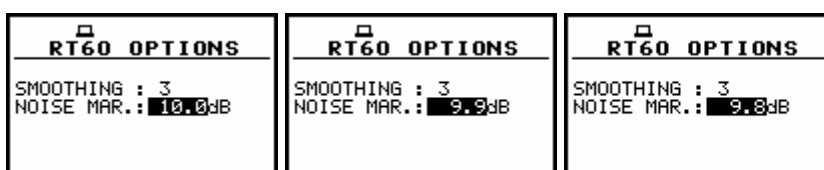
RT60 OPTIONS window; the SMOOTHING selection with the step equal to 1



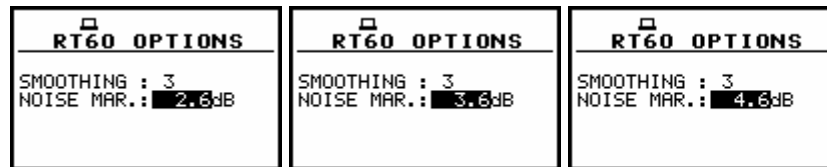
RT60 OPTIONS window; the SMOOTHING selection with the step equal to 5

### 9.18.2 Setting the margin value of background noise level - NOISE MAR.

In the **NOISE MAR.** position the user can set the requesting additional margin value to the background noise level noise margin during the **RT60** measurements. In this position values from **0.0dB** to **20.0dB** are available. The selection is made by means of the <^>, <v> push-buttons with 0.1 dB step or by means of the <^>, <v> push-buttons pressed together with the <SHIFT> one with the step equal to 1 dB. The confirmation of the selection requires pressing the <ENTER> push-button, which simultaneously closes the window. The **RT60 OPTIONS** window is closed ignoring any changes made in there, after pressing any time the <ESC> push-button.



RT60 OPTIONS window; the NOISE MAR. selection with 0.1dB step

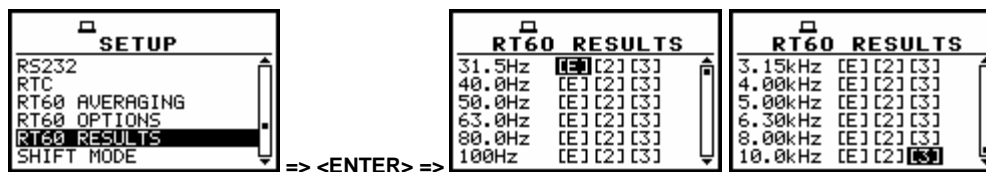


RT60 OPTIONS window; the NOISE MAR. selection with 1dB step

## 9.19 Selection of RT60 results parameters - RT60 RESULTS

The **RT60 RESULTS** appears in the **SETUP** list after selection of the **RT60** function in the **MEASUREMENT FUNCTIONS** window (path: MENU / FUNCTION / MEASUREMENT FUNCTION).

This sub-list is opened after the selection of the **RT60 AVERAGING** text from the **SETUP** list by means of the <▲>, <▼> (or <◀>, <▶>) push-buttons and pressing the <ENTER> one.



RT60 RESULTS selected in the SETUP list and the RT60 RESULTS window opened

By marking ([E], [2], [3]) or unmarking ([ ], [ ], [ ]) the options, the user can set to each 1/3 octave band which of the reverberation time results will be presented in the visualization levels:

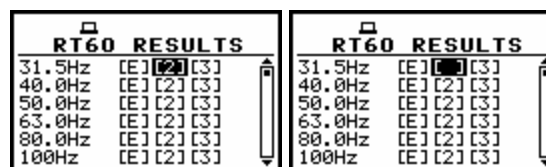
- **[E]** (EDT) - the **EDT** (Early Decay Time) is marked,
- **[2]** (RT 20) - the **RT 20** reverberation time is marked,
- **[3]** (RT 30) - the **RT 30** reverberation time is marked.

By pressing the <▲>, <▼> and <◀>, <▶> push-buttons the user can highlight the one of three options **[E]**, **[2]**, **[3]** in each 1/3 octave band.

For faster scroll between the rows press the <SHIFT> push-button and while holding it, press the <▲>, <▼> push-buttons.

To mark or unmark the desired option first highlight it and then press <◀> or <▶> push-button with <SHIFT> one.

The confirmation of the changes is made by pressing <ENTER> push-button. The **RT60 RESULTS** window is closed ignoring any changes made in there, after pressing the <ESC> push-button.



RT60 RESULTS window, unmarking option in 1/3 octave band

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

The **SHIFT MODE** enables the user to programme the operation mode of the <SHIFT>, <ALT> and <START / STOP> push-buttons.

In order to enter the position the user has to select the **SHIFT MODE** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER> one. The selection of a parameter in both positions is done by means of the <◀>, <▶> push-buttons and confirmed by the <ENTER> one. Any changes made in the window are not confirmed in the case of pressing the <ESC> push-button but the window is closed.

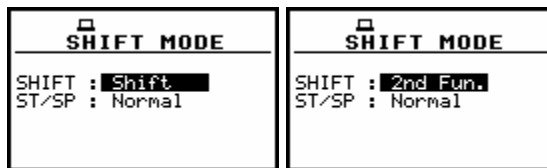


SETUP list, the **SHIFT MODE** text highlighted (displayed inversely)

### 9.20.1 <SHIFT> / <ALT> push-button working mode selection - SHIFT

In the **SHIFT**, the user can choose between **2nd Fun.** and **Shift**. When the **Shift** text is selected, the <SHIFT> and <ALT> push-buttons operates as in the keyboard of a computer – in order to achieve the desired result, the second push-button has to be pressed in conjunction with the <SHIFT>/<ALT> one. When the **2nd Fun.** text is selected the <SHIFT>/<ALT> push-button operates in the sequence with the other one.

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.



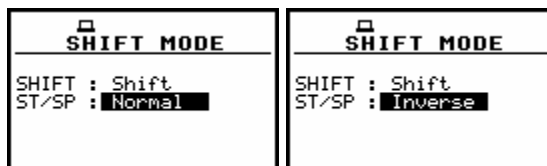
SHIFT MODE windows; the available SHIFT settings

### 9.20.2 <START / STOP> push-button working mode selection - ST/SP

In the **ST/SP** the user can choose between **Normal** and **Inverse**. When the **Normal** text is selected the instrument reacts on each of the <START / STOP> push-button 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.

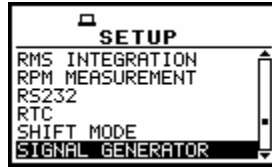


SHIFT MODE windows; the available ST/SP settings

## 9.21 Activation of the signal generation option - SIGNAL GENERATOR

The **SIGNAL GENERATOR** position enables the user to activate the built-in signal generator. This function will be available in the future.

In order to enter the sub-list the user has to select the **SIGNAL GENERATOR** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER> one.



SETUP list, the **SIGNAL GENERATOR** selected (highlighted inversely)



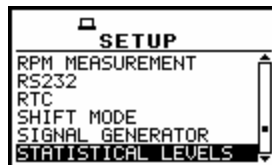
Display in the opened **SIGNAL GENERATOR** window

## 9.22 Setting ten statistical levels - STATISTICAL LEVELS

The **STATISTICAL LEVELS** position is available only in the case of the sound measurements (in the **MODE** sub-list the **SOUND METER** or **VOLTAGE (SOUND)** position is selected).

In the **STATISTICAL LEVELS** it is possible to select which ten statistical levels, named from **N1** to **N10**, has to be calculated, displayed and saved in the files together with the main results.

In order to enter the sub-list the user has to select the **STATISTICAL LEVELS** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER> one.



SETUP list, the **STATISTICAL LEVELS** sub-list selected

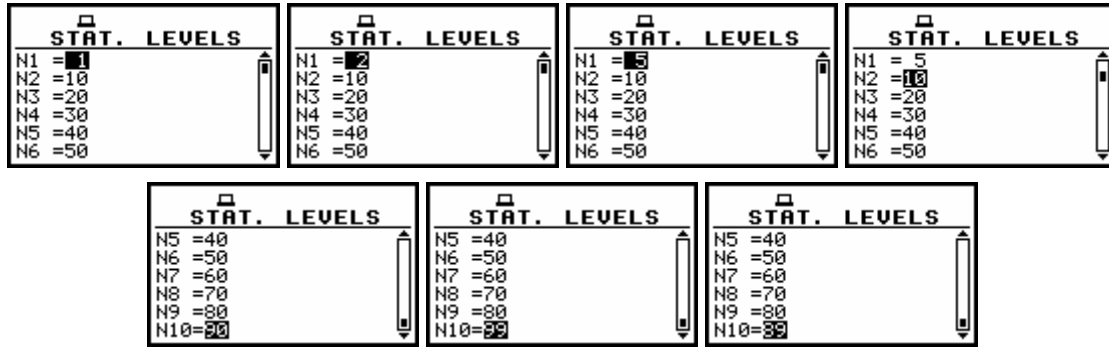
The default statistic levels have the following settings: **1, 10, 20, 30, 40, 50, 60, 70, 80** and **90**. All values have to be within the range [1, 99]. Each one value can be set independently from the others. The selection of the **Nx** is made using the <▲>, <▼> push-buttons.

The upper **Nx** visible on the display is active after pressing the <▲> together with the <SHIFT> push-button.

The lower **Nx** visible on the display is active after pressing the <▼> together with the <SHIFT> push-button.

The **Nx** current value decreasing / increasing by one is possible by means of the <◀> / <▶> push-buttons. The step can be decreased / increased up to ten after pressing simultaneously the <◀> / <▶> push-buttons with the <SHIFT> one.

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 this list) or <ESC> push-buttons (ignoring all changes).



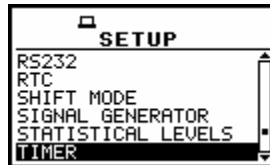
Displays in the STATISTICAL LEVELS sub-list

### 9.23 Programming the instrument's internal timer - TIMER

The **TIMER** enables one to programme the internal timer. The instrument can be switched on by itself in the programmed time and it can perform the measurements using the setup, which was used before its switching off.

The selection of the parameter to be set is performed using the <▲>, <▼> and the change of its value – using the <◀>, <▶> push-buttons pressed together with the <SHIFT>.

In order to enter the position the user has to select the **TIMER** text in the **SETUP** list (using the <▲>, <▼> or <◀>, <▶> push-buttons) and press the <ENTER> one.



SETUP list, the **TIMER** text highlighted (displayed inversely)

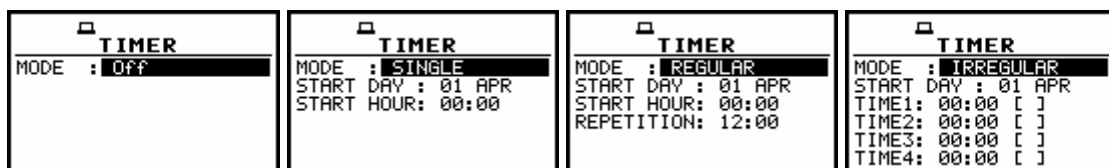
#### 9.23.1 Selecting the mode of the timer function - MODE

The **MODE** of the timer function is selected pressing the <◀>, <▶> push-buttons when the **MODE** text is displayed inversely in the **TIMER** sub-list.

The timer can be switched off – **Off**, switched on only once – **SINGLE**, switched on many times regularly – **REGULAR** with the period between two consecutive measurements set in the **REPETITION** line or switched on up to four times, not regularly – **IRREGULAR** in the time set in the **TIMEx** positions.

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.

In the case the timer function is active (**SINGLE**, **REGULAR** or **IRREGULAR**) the clock icon starts blinking up to switching timer function off or up to finishing programmed measurements.



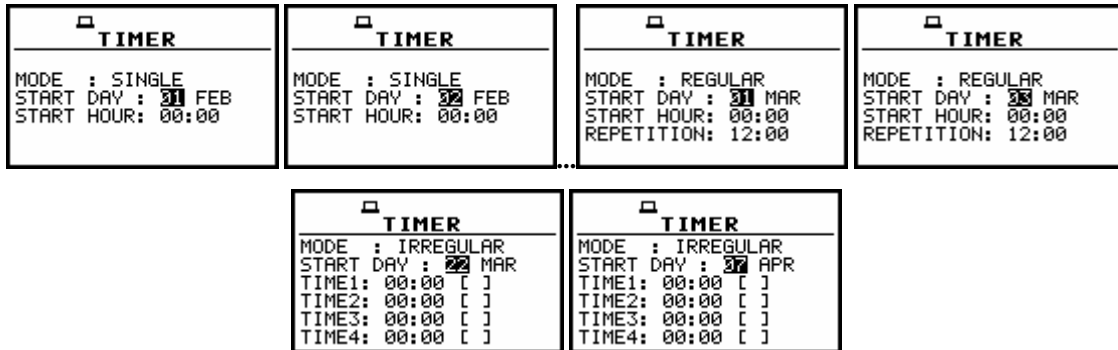
TIMER windows; the mode selection

### 9.23.2 Setting day of the instrument's switch on - START DAY

The **START DAY** determines the date of the measurement start. The timer can be programmed up to one month ahead and during the date setting the current state of the **Real Time Clock** is taken into account.

The required date can be selected pressing the <◀>, <▶> push-buttons when the **START DAY** text is displayed inversely in the **TIMER** sub-list.

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.

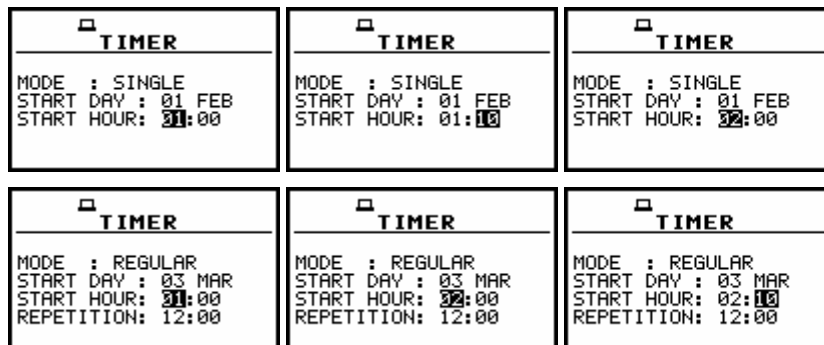


TIMER windows; setting day of the instrument's switch on

### 9.23.3 Setting hour of the instrument's switch on – START HOUR

The **START HOUR** determines hour of the measurement start. The required hour can be selected pressing the <◀>, <▶> push-buttons when the **START HOUR** text is displayed inversely in the **TIMER** sub-list.

In order to set minutes one has to enter their position pressing the <▲>, <▼> pushbuttons and then pressing the <◀>, <▶> push-buttons to select the proper value. 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.



TIMER windows; setting hour and minute of the instrument's switch on

### 9.23.4 Selecting the start hours for four irregular automatic measurements - TIME<sub>x</sub>

The **TIME<sub>x</sub>** (**TIME1**, **TIME2**, **TIME3**, **TIME4**) is used to determine four irregular automatic starts of the measurements. The required hour can be selected pressing the <◀>, <▶> push-buttons when the **TIME<sub>x</sub>** text is displayed inversely in the **TIMER** sub-list (mode **IRREGULAR**).

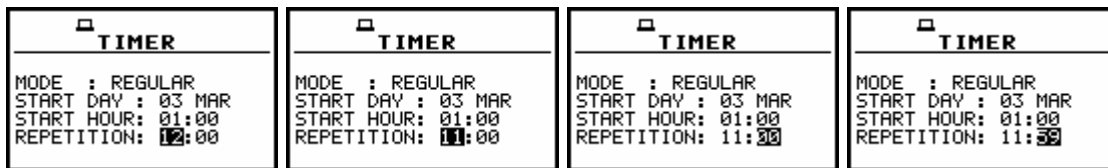
In order to set minutes one has to enter the proper line pressing the <▲>, <▼> push-buttons and then pressing the <◀>, <▶> push-buttons to select the proper value. The selected value has to be

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.

### 9.23.5 Selecting the period between two consecutive measurements - REPETITION

The **REPETITION** of the timer function is selected pressing the <◀>, <▶> push-buttons when the **REPETITION** text is displayed inversely in the **TIMER** sub-list (mode **REGULAR**). This parameter can be programmed from **00:00** up to **99:59**.

In order to set the proper value one has to select hours or minutes pressing the <▲>, <▼> push-buttons and then, pressing the <◀>, <▶> push-buttons, to select the proper value. 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.



TIMER windows; setting REPETITION parameter

### 9.23.6 Description of the exemplary timer function execution

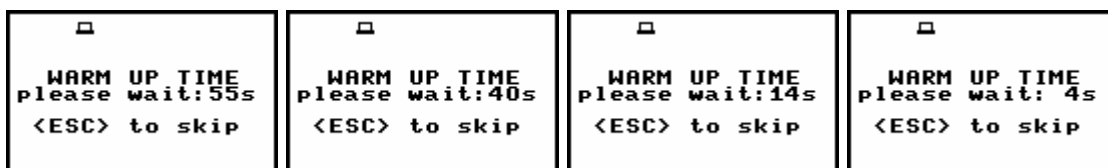
The **TIMER** function is used to programme the instrument's switch on at the given time and perform the measurements with the parameters set in the **INPUT** sub-list. Let us assume that the user wants to switch on the instrument the 1<sup>st</sup> of February, at 13:25, measure sound during 10 seconds without using logger and save the results in a file @RES2.

In order to do this the user has to set the parameters of the **TIMER** function (*path: MENU / SETUP / TIMER*), the measurement parameters (*path: MENU / INPUT / MEASUREMENT SETUP*), activate the **AUTO SAVE** function (*path: MENU / FILE / SAVE OPTIONS*), named the file (the **FILE NAME** window is opened after switching on the **AUTO SAVE** function) and finely – switched off the instrument.



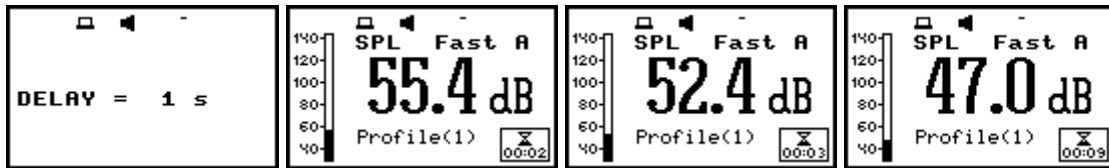
Exemplary settings made for the desired execution of the **TIMER** function

The instrument will be switched on the 21<sup>st</sup> of November at 13:25 and will be warmed up for the period of 60 seconds decrementing by one after each second the counter visible on the display.



Counting down during the warming up of the instrument after switching it on

After warming up the instrument and the preset **DELAY** time, the measurements are performed for a period of ten seconds. Then, the results are saved in the file which name was given or accepted (the proper information is displayed) and finely – the instrument is switched off.



Displays during the executing of the **TIMER** function



**Notice:** The instrument's **TIMER** function can be used for multiply measurements (at the programmed day and time with the selected repetition). The first switch on of the instrument **must** be within one month ahead.

## 9.24 Selection of tonality parameters - TONALITY

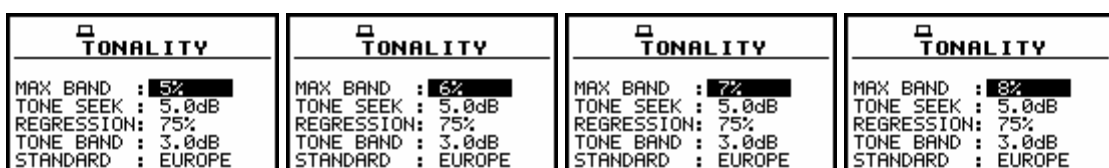
The **TONALITY** appears in the **SETUP** list in the case of the **TONALITY** measurement function selected in the **MEASUREMENT FUNCTION** window (path: **MENU / FUNCTION / MEASUREMENT FUNCTION / TONALITY**) in the **SOUND METER** mode. This function is not available in the **VIBRATION METER** mode. This sub-list is opened after the selection of the **TONALITY** text from the **SETUP** list by means of the **<▲>**, **<▼>** (or **<◀>**, **<▶>**) push-buttons and pressing the **<ENTER>** one. The **TONALITY** consists of the parameters, which influence the calculation of the tonality measurements results: the **MAX BAND**, **TONE SEEK**, **REGRESSION**, **TONE BAND**, **STANDARDS**.



**TONALITY** selected in the **SETUP** list and the **TONALITY** window opened

### 9.24.1 Selecting/setting maximal tone bandwidth - MAX BAND

The **MAX BAND** determines the maximal tone bandwidth relative to the width of the surrounding critical band and this line is accessible after pressing the **<▲>**, **<▼>** push-buttons in the **TONALITY** window. The available values are from 5 % to 25 %. They can be selected by means of the **<◀>**, **<▶>** push-buttons with the step equal to 1 % or with the **<SHIFT>** one with the step equal to 10 %. The confirmation of any change made in the line requires pressing the **<ENTER>** push-button, which simultaneously closes the window. The **TONALITY** is closed ignoring any changes made in there, after pressing any time the **<ESC>** push-button.



**TONALITY** window, **MAX BAND** selection with 1 % step

<b>TONALITY</b>	<b>TONALITY</b>	<b>TONALITY</b>	<b>TONALITY</b>
MAX BAND : 6%	MAX BAND : 11%	MAX BAND : 16%	MAX BAND : 21%
TONE SEEK : 5.0dB	TONE SEEK : 5.0dB	TONE SEEK : 5.0dB	TONE SEEK : 5.0dB
REGRESSION: 75%	REGRESSION: 75%	REGRESSION: 75%	REGRESSION: 75%
TONE BAND : 3.0dB	TONE BAND : 3.0dB	TONE BAND : 3.0dB	TONE BAND : 3.0dB
STANDARD : EUROPE	STANDARD : EUROPE	STANDARD : EUROPE	STANDARD : EUROPE

TONALITY window, MAX BAND selection with 5 % step

### 9.24.2 Setting the criterion of tone seeking - TONE SEEK

In the **TONE SEEK** position, the user sets the tone-seek criterion, which is used in finding noise pauses (noise pauses are local maxima with a probability of a tone). The **TONE SEEK** line is accessible after pressing the <▲>, <▼> push-buttons in the **TONALITY** window.

The available values are from **1.00dB** to **5.00dB**. They can be selected by means of the <▲>, <▼> push-buttons with the step equal to 1% or with the <SHIFT> one with the step equal to 10%.

The confirmation of any change made in the line requires pressing the <ENTER> push-button, which simultaneously closes the window. The **TONALITY** is closed ignoring any changes made in there, after pressing any time the <ESC> push-button.

<b>TONALITY</b>	<b>TONALITY</b>	<b>TONALITY</b>	<b>TONALITY</b>
MAX BAND : 10%	MAX BAND : 10%	MAX BAND : 10%	MAX BAND : 10%
TONE SEEK : 5.0dB	TONE SEEK : 4.9dB	TONE SEEK : 4.8dB	TONE SEEK : 4.7dB
REGRESSION: 75%	REGRESSION: 75%	REGRESSION: 75%	REGRESSION: 75%
TONE BAND : 3.0dB	TONE BAND : 3.0dB	TONE BAND : 3.0dB	TONE BAND : 3.0dB
STANDARD : EUROPE	STANDARD : EUROPE	STANDARD : EUROPE	STANDARD : EUROPE

TONALITY window, TONE SEEK selection with 0.1 dB step

<b>TONALITY</b>	<b>TONALITY</b>	<b>TONALITY</b>	<b>TONALITY</b>
MAX BAND : 10%	MAX BAND : 10%	MAX BAND : 10%	MAX BAND : 10%
TONE SEEK : 4.5dB	TONE SEEK : 3.5dB	TONE SEEK : 2.5dB	TONE SEEK : 1.5dB
REGRESSION: 75%	REGRESSION: 75%	REGRESSION: 75%	REGRESSION: 75%
TONE BAND : 3.0dB	TONE BAND : 3.0dB	TONE BAND : 3.0dB	TONE BAND : 3.0dB
STANDARD : EUROPE	STANDARD : EUROPE	STANDARD : EUROPE	STANDARD : EUROPE

TONALITY window, TONE SEEK selection with 1 dB step

### 9.24.3 Setting the regression of tonality measurements - REGRESSION

The **REGRESSION** determines the frequency range (relative to the width of the critical band) used in noise level calculation. The **REGRESSION** line is accessible after pressing the <▲>, <▼> push-buttons in the **TONALITY** window.

The available values are from **50 %** to **100 %**. They can be selected by means of the <▲>, <▼> push-buttons with the step equal to 1 % or with the <SHIFT> one with the step equal to 5 %.

The confirmation of any change made in the line requires pressing the <ENTER> push-button, which simultaneously closes the window. The **TONALITY** is closed ignoring any changes made in there, after pressing any time the <ESC> push-button.

<b>TONALITY</b>	<b>TONALITY</b>	<b>TONALITY</b>
MAX BAND : 10%	MAX BAND : 10%	MAX BAND : 10%
TONE SEEK : 5.0dB	TONE SEEK : 5.0dB	TONE SEEK : 5.0dB
REGRESSION: 73%	REGRESSION: 74%	REGRESSION: 75%
TONE BAND : 3.0dB	TONE BAND : 3.0dB	TONE BAND : 3.0dB
STANDARD : EUROPE	STANDARD : EUROPE	STANDARD : EUROPE

TONALITY window, REGRESSION selection with 1 % step

TONALITY	TONALITY	TONALITY
MAX BAND : 10%	MAX BAND : 10%	MAX BAND : 10%
TONE SEEK : 5.0dB	TONE SEEK : 5.0dB	TONE SEEK : 5.0dB
REGRESSION: 75%	REGRESSION: 80%	REGRESSION: 85%
TONE BAND : 3.0dB	TONE BAND : 3.0dB	TONE BAND : 3.0dB
STANDARD : EUROPE	STANDARD : EUROPE	STANDARD : EUROPE

TONALITY window, REGRESSION selection with 5 % step

#### 9.24.4 Selecting the tone band of tonality measurements - TONE BAND

The **TONE BAND** determines the level, which describes tone bandwidth. The **TONE BAND** line is accessible after pressing the <▲>, <▼> push-buttons in the **TONALITY** window.

The available values are from **1.00dB** to **6.00dB**. They can be selected by means of the <◀>, <▶> push-buttons with the step equal to 0.1 dB or by means of the <◀>, <▶> push-buttons pressed together with <SHIFT> one with the step equal to 1 dB.

The confirmation of any change made in the line requires pressing the <ENTER> push-button, which simultaneously closes the window. The **TONALITY** is closed ignoring any changes made in there, after pressing any time the <ESC> push-button.

TONALITY	TONALITY	TONALITY
MAX BAND : 10%	MAX BAND : 10%	MAX BAND : 10%
TONE SEEK : 5.0dB	TONE SEEK : 5.0dB	TONE SEEK : 5.0dB
REGRESSION: 75%	REGRESSION: 75%	REGRESSION: 75%
TONE BAND : 2.6dB	TONE BAND : 2.7dB	TONE BAND : 2.8dB
STANDARD : EUROPE	STANDARD : EUROPE	STANDARD : EUROPE

TONALITY window, TONE BAND selection with 0.1 dB step

TONALITY	TONALITY	TONALITY
MAX BAND : 10%	MAX BAND : 10%	MAX BAND : 10%
TONE SEEK : 5.0dB	TONE SEEK : 5.0dB	TONE SEEK : 5.0dB
REGRESSION: 75%	REGRESSION: 75%	REGRESSION: 75%
TONE BAND : 3.8dB	TONE BAND : 4.8dB	TONE BAND : 5.8dB
STANDARD : EUROPE	STANDARD : EUROPE	STANDARD : EUROPE

TONALITY window, TONE BAND selection with 1 dB step

#### 9.24.5 Selection of the standard for tonality measurement - STANDARD

The **STANDARD** enables the user to set the standards for the measurements of the tonality. The available values of this position are **EUROPE**, **GERMAN** and **ITALY**. The proper standard can be selected by means of the <◀>, <▶> push-buttons.

The confirmation of a selection is made by pressing the <ENTER> push-button, which simultaneously closes the window. The **TONALITY** is closed ignoring any changes made in there, after pressing any time the <ESC> push-button.

TONALITY	TONALITY	TONALITY
MAX BAND : 10%	MAX BAND : 10%	MAX BAND : 10%
TONE SEEK : 5.0dB	TONE SEEK : 5.0dB	TONE SEEK : 5.0dB
REGRESSION: 75%	REGRESSION: 75%	REGRESSION: 75%
TONE BAND : 3.0dB	TONE BAND : 3.0dB	TONE BAND : 3.0dB
STANDARD : EUROPE	STANDARD : GERMAN	STANDARD : ITALY

TONALITY window, STANDARD selection

## 9.25 Selection the USB-HOST port functionality - USB-HOST PORT

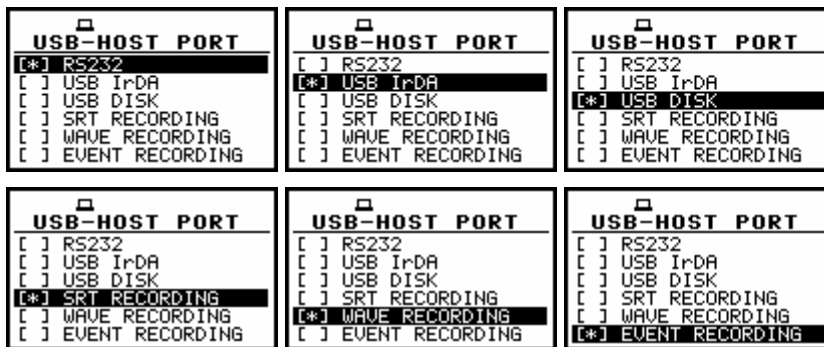
The **USB-HOST PORT** enables one to programme the functionality of the instrument's socket named **USB Host**.

In order to enter the position the user has to select the **USB-HOST PORT** text in the **SETUP** list, using the <^>, <v> (or <^>, <v>) push-buttons and press the <ENTER> one.



SETUP list, the USB-HOST PORT text highlighted (displayed inversely)

The socket **USB Host** can be used to serve as the input of the different interfaces: **RS 232** or **USB**. The **RS 232** interface in the **SVAN 95x** instrument is available as a hardware option (a special interface, named as the **SV 55**, with a dedicated microprocessor has to be attached to the socket **USB Host**). The RS232 is the default setting in this window. Only in this option the USB host controller is awoken and the power consumption is the lower one. An error occurs in the case of the connection to the socket the peripheral device of the different type than the selected one.



Displays in the USB-HOST PORT

The selection of the socket's functionality is made with the <^>, <v> (or <^>, <v>) push-buttons which moves the special character between the available options. The selection is confirmed after pressing the <ENTER> push-button which closes the window and returns to the **SETUP** list. The return to this list is also possible after pressing the <ESC> push-button but the selection is not confirmed. In order to activate **IrDA**, **SRT RECORDING**, **WAVE RECORDING** or **EVENT RECORDING** the user has to introduce a special code.



Displays during the entering of the access code to SRT RECORDING, WAVE RECORDING or EVENT RECORDING

The USB host interface can be used to control the external USB memory disk (**USB DISK**, **SRT RECORDING**, **WAVE RECORDING**, **EVENT RECORDING**) with the FAT16 or FAT32 file systems or **IrDA** (Infrared Data Acquisition) interface (**USB IrDA**) based on the dedicated circuit STIr4200.



**Notice:** The converter **SV 55** serves as the RS 232 interface. The **SV 55** connection to the **USB Host** socket is detected and after successful detection the headphone icon is switched on. The transmission using the **SV 55** is possible only in the case when the instrument is not connected to a PC with the **USB Device** port.



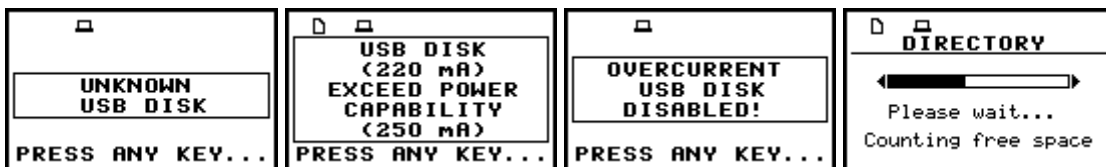
**Notice:** The connection to the **USB Host** socket the USB disk switches off the instrument's internal flash memory. All file functions and remote commands are redirected to the USB disk. The internal flash memory is activated after disconnecting USB disk and the instrument.

After the **USB DISK**, **SRT RECORDING**, **WAVE RECORDING** or **EVENT RECORDING** selection, the device connected to that socket is recognised. The warning appears on the display after the connection of the unknown device.

In the case, the device declares the current consumption greater than 200 mA the dedicated warning is presented.

In the case, the current consumption is greater than 250 mA the connected USB disk is switched off and special warning is displayed.

In other cases, the connected USB disk is initiated and the free space is determined.



Displays with the different USB disk warnings

This operation can last up to few minutes depending on the disk's capacity. The detection of the **USB DISK** is signalled by the paper sheet icon (at the display's left corner). Next, the file's directory should be determined (*path: MENU / FILE / DIRECTORY*). This directory can be created in the instrument or already existing one in the disk is selected.

The **FREE SPACE** denotes the available free memory on the connected disk.

The **DIR NO.** shows the number of the selected directory (the 1<sup>st</sup> number) and the number of the existing directories (the 2<sup>nd</sup> number). In the case the directories do not exist, these numbers are equal to zero.

The **DIR NAME** enables one to edit the directory name (the 1<sup>st</sup> number) or displays its name. The help lines are placed at the display's bottom.

There are two ways of the current directory selection:

- the name edition in the **DIR NAME** line. The default name consists of the day number and the month abbreviation. The not existing directory will be created.
- the selection of the existing directory by means of the <◀>, <▶> push-buttons pressed in the line with the **DIR NO.** text. The name of the selected directory is displayed in the **DIR NAME** line.

The selection is confirmed after pressing the <ENTER> push-button which closes the window and returns to the **FILE** list. The return to this list is also possible after pressing the <ESC> push-button but the selection is not confirmed. The selection of the directory is obligatory during the initialisation process. In this case also the <ESC> push-button confirms the settings.



Contents of the DIRECTORY window

In the case of the **TIMER** function, the directory selection is skipped and the default one is created.

The usage of the USB disk modifies a few windows and lists. First of all, the described above **DIRECTORY** window and **COPY FILES TO USB**, **MOVE FILES TO USB** windows appear in the **FILE** list. Additionally, in some places concerning the file management the info about the name of the current USB disk directory is displayed in the upper line: *DIRECTORY: the name of the current directory.*

These places are as follows: *DISPLAY/LOGGER VIEW, FILE/LOAD, FILE/DELETE/RESULT FILES, FILE/DELETE/LOGGER FILES, FILE/DELETE/SETUP FILES, FILE/CATALOGUE, FILE/LOAD SETUP.*

The usage of the USB disk modifies also the execution of a few functions, namely:

- the **DEFRAGMENTATION** is not executed,
- the REAL TIME transmission is stopped,
- the remote file writing using the #9 function is not available
- in the **FILE / FREE SPACE** window the free space and the total capacity of the USB disk are given,
- in the file report the name of the current directory of the USB disk is added,
- the USB disk memory is not divided between the files and the logger, so the free space concerns both: logger and file memory.

The USB disk can be disconnected when the measurements are not performed and the results are presented. The internal instrument's flash memory is initialised after switching off the USB disk.

In the USB disk that is divided into partitions its first partition has to serve FAT32 or FAT16 file system. Only short name file (up to 8 characters, similar to DOS system) is implemented. The existing longer names are shortened.

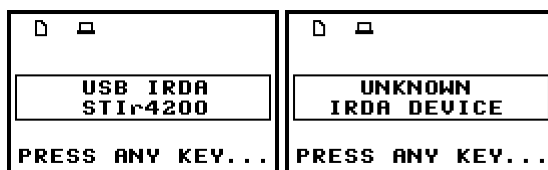


**Notice:** *The disconnection of the USB disk during the data transmission can cause the lost of data saved in the USB disk as well as in the instrument's internal flash.*

The IrDA is the wireless interface used for the communication between the instrument and a PC. The connection of the IrDA converter results in displaying the info window and switching on the paper sheet icon (at the left side of the upper line).

In the case of the unsuitable settings in the **USB HOST PORT** window or connecting wrong device another info window is displayed.

The transmission parameters are selected automatically during the negotiation process. The fastest available speed equals to 115 200 kb/s. In this case, the real speed is not bigger than 1.5 kB/s. The IrDA programming is based on a virtual COM port emulation in a PC.

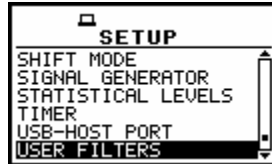


Displays during the IrDA interface connection

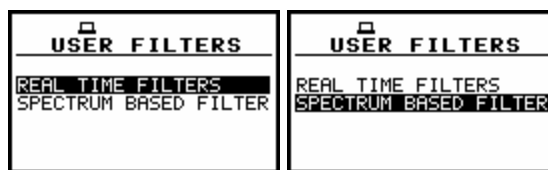
## 9.26 Setting the coefficients of the user filters - USER FILTERS

The **USER FILTERS** position enables the user to introduce the values of the coefficients of the user filters.

In order to enter the position 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 **USER FILTERS** sub-list contains two positions: **REAL TIME FILTERS** and **SPECTRUM BASED FILTERS**.



SETUP list, the **USER FILTERS** text highlighted (displayed inversely)



**USER FILTERS** windows, **REAL TIME FILTERS** selected (a), **SPECTRUM BASED FILTERS** selected (b)

### 9.26.1 Introduction the parameters of real time filters - REAL TIME FILTERS

The **REAL TIME FILTERS** sub-list enables the user to introduce the values of the correcting coefficients taken into account in the **real time measurements**.

In order to enter this sub-list the user has to select the **REAL TIME FILTERS** text in the **USER FILTERS** list, using the <^>, <v> (or <^>, <v>) push-buttons and press the <ENTER>. After pressing <ENTER> push-button the window for entering the access code to an option is opened (in the first essay of its execution).

The **REAL TIME FILTERS** (sub-list) contains 3 positions: **R1**, **R2**, **R3**.



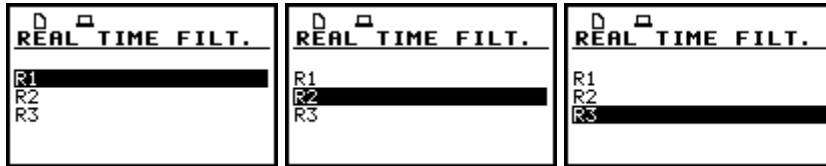
**USER FILTERS** windows, **REAL TIME FILTERS** selected



Displays during the entering of the access code to **REAL TIME FILTERS**

#### 9.26.1.1 Selecting real time filter - Rx

The selection of the filter is made by means of the <^>, <v> (or <^>, <v>) push-buttons. The confirmation is made after pressing <ENTER> push button. The return to the **USER FILTERS** window ignoring any changes made in the sub-list is made after pressing the <ESC> push-button.

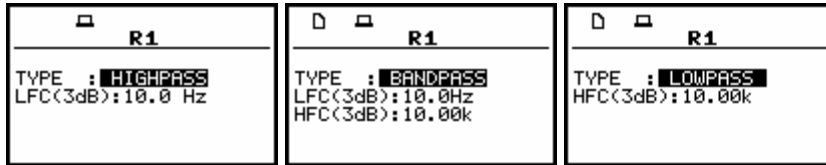


REAL TIME FILTERS windows, the filter selection

In **R<sub>x</sub>** (**R1**, **R2**, **R3**) window there are three positions: **TYPE**, **LFC(3dB)**, **HFC(3dB)**. The selection of the position is made by means of **<▲>**, **<▼>** push-buttons.

In order to confirm the selection the user has to press **<ENTER>** push button.

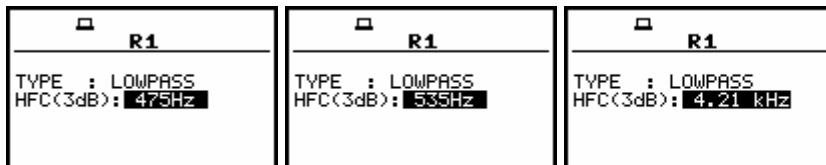
In the **TYPE** position there are three options: **HIGHPASS**, **BANDPASS** and **LOWPASS** denoting the type of the digital filter, which has to be designed and implemented. All mentioned above filters, high-pass, band-pass and low-pass, are the second order, which means that the slope is equal to 12 dB/octave. The selection of the option is made with **<◀>**, **<▶>** push-buttons. The confirmation is made after pressing **<ENTER>** push-button. The return to the **REAL TIME FILTERS** list ignoring any changes made in the sub-list is made after pressing the **<ESC>** push-button.



R1 filter windows, the TYPE selection

In the case of a low-pass filter the user has to determine the **HFC(3dB)** parameter which denotes the **HFC** (**H**igh **F**requency **C**orner) of the **R<sub>x</sub>** filter at which the amplitude of the input signal is attenuated two times. The available values are from 100 Hz to 10.0 kHz.

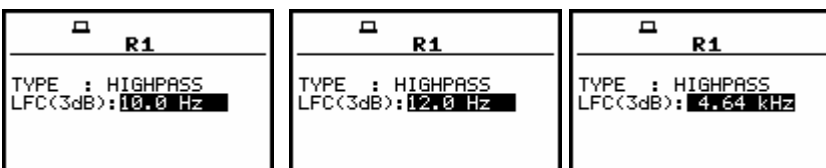
The selection of the required value is made with **<◀>**, **<▶>** push-button (pressing **<◀>** or **<▶>** push-button with the **<SHIFT>** one increases the step 20 times). The confirmation is made by pressing **<ENTER>**. The return to the **REAL TIME FILTERS** list ignoring any changes made in the sub-list is made after pressing the **<ESC>** push-button.



R1 filter windows, the HFC(3dB) selection for a LOWPASS filter

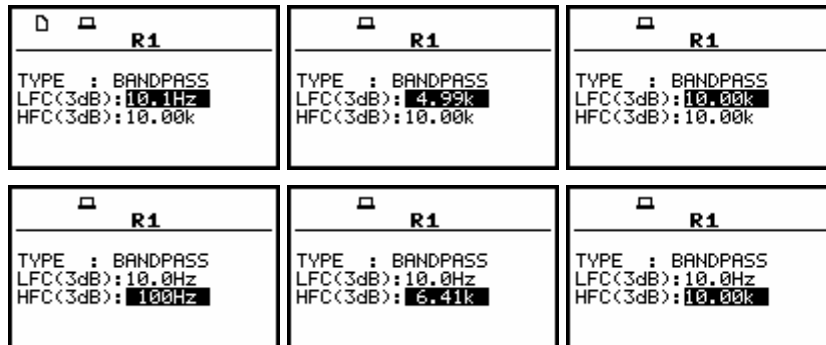
In the case of a high-pass filter the user has to determine the **LFC(3dB)** parameter, which denotes the **LFC** (**L**ow **F**requency **C**orner) of the **R<sub>x</sub>** filter at which the amplitude of the input signal is attenuated two times. The available values of the **LFC** are from 10 Hz to 10.0 kHz.

The selection of the required value is made with **<◀>**, **<▶>** push-button (pressing **<◀>** or **<▶>** push-button with the **<SHIFT>** one increases the step 20 times). The confirmation is made by pressing **<ENTER>**. The return to the **REAL TIME FILTERS** list ignoring any changes made in the sub-list is made after pressing the **<ESC>** push-button.



R1 filter windows, the LFC(3dB) selection for a HIGHPASS filter

In the case of a band-pass filter, the user has to determine two frequencies: the **LFC(3dB)** which denotes the (**L**ow **F**requency **C**orner) and the **HFC(3dB)** of the **Rx** filter. At these frequencies, the amplitude of the input signal is attenuated two times. The available values of the **LFC** are from 10 Hz to 10.0 kHz, while the **HFC** the available values are from 100 Hz to 10.00 kHz. The selection of the parameter is made by pressing <◀>, <▶> push-buttons (pressing <◀> or <▶> push-button with the <SHIFT> one increases the step 20 times). The confirmation is made by pressing <ENTER>. The return to the **REAL TIME FILTERS** list ignoring any changes made in the sub-list is made after pressing the <ESC> push-button.



R1 filter windows, the LFC(3dB) selection and the HFC(3dB) selection for BANDPASS filter

## 9.26.2 Setting filter coefficients for octave analysis - SPECTRUM BASED FILTERS

The **SPECTRUM BASED FILTERS** sub-list enables the user to introduce the values of the filter coefficients correcting the results of **1/1 OCTAVE** or **1/3 OCTAVE** analysis. The results of the analysis (the **TOTAL** values) can be modified by the introduced factors.

In order to enter the sub-list the user has to select the **USER FILTERS** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>. The **USER FILTERS** (sub-list) contains 3 sub-lists: **VIEW**, **EDIT** and **CLEAR**.

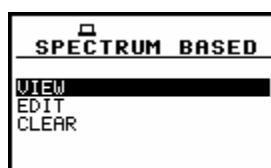


USER FILTERS windows, SPECTRUM BASED FILTERS selected

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

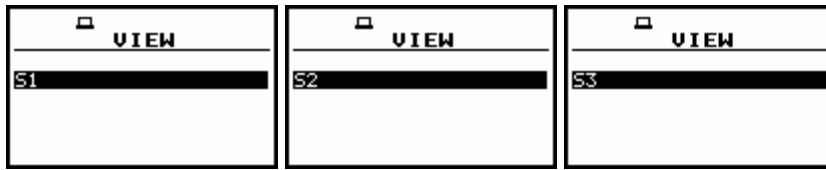
The **VIEW** sub-list enables one to look at the coefficients of the **USER FILTERS** sets saved in the instrument under the names **S1**, **S2**, **S3**. The coefficients can be set by the user in the instrument by means of the **EDIT** option or sent to it (together with the name) by means of the interface using **#6** function (cf. App. A for the description).

In order to enter the sub-list the user has to select in the **SPECTRUM BASED FILTER** sub-list the **VIEW** text, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>. In the **VIEW** window one can select one of three mentioned above filters (**S1**, **S2** and **S3**). The selection of the filter in this sub-list is performed by means of the <◀>, <▶> push-buttons.



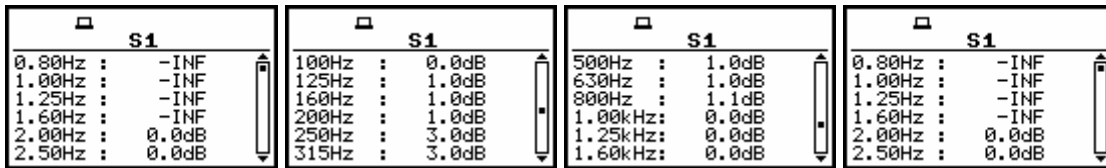
SPECTRUM BASED FILTERS window, the VIEW text highlighted

The sub-list is closed and the instrument returns to the **USER FILTERS** sub-list after pressing the **<ESC>** push-button (ignoring a change made in the position).



VIEW windows, the filter selection

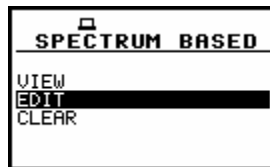
After pressing the **<ENTER>** push-button on the displayed inversely text the proper sub-list is opened containing the values of the coefficients for all **SPECTRUM BASED 1/1 OCTAVE** and **1/3 OCTAVE** filters. It is not possible to change the values. The selection of the displayed coefficients in the selected filter is performed by means of the **<▲>**, **<▼>** push-buttons.



S1 filter windows

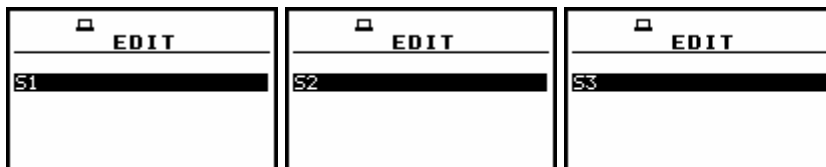
### 9.26.2.2 Setting the coefficients of the user filters set - EDIT

The **EDIT** sub-list enables the user to select which filters should be edited; the available options are as follows: **S1**, **S2**, **S3** or any other transmitted to the instrument from a PC by means of the interface. In order to enter the sub-list the user has to select the **EDIT** text in the **SPECTRUM BASED FILTER** sub-list, using the **<▲>**, **<▼>** (or **<◀>**, **<▶>**) push-buttons and press the **<ENTER>**.



SPECTRUM BASED FILTERS window, the EDIT text highlighted

The selection of the position in this sub-list is performed by means of the **<◀>**, **<▶>** push-buttons. After pressing the **<ENTER>** push-button when the **S1**, **S2**, **S3** or any other (in the **EDIT** window) text is displayed inversely, the sub-list containing the values of the coefficients for all **1/1 OCTAVE** and **1/3 OCTAVE** filters is opened.

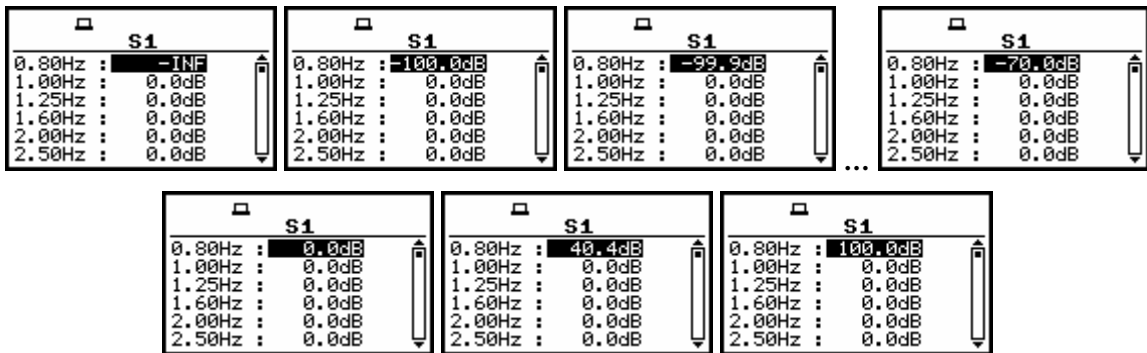


EDIT windows, the filter selection

The opened window contains the centre frequencies of the filters and their coefficients:

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

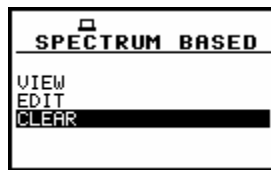
The selection of the position in the set is performed by means of the <▲>, <▼> push-buttons. The value is introduced by pressing the <◀>, <▶> push-buttons. The sub-list is closed and the instrument returns to the **USER FILTERS** sub-list after pressing the <ENTER> (with the confirmation of all settings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



S1 filter windows; the coefficient selection

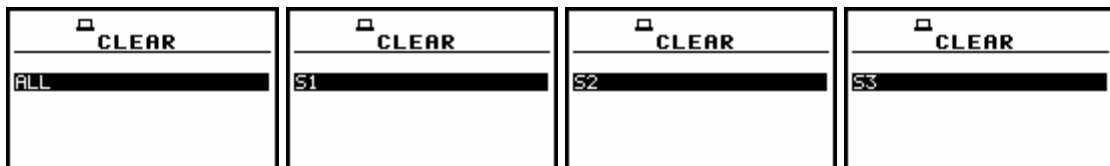
**9.26.2.3 Clearing the coefficients of the user filters - CLEAR**

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 (**S1**), to clear the second set (**S2**), to clear the third one (**S3**) or any other transmitted to the instrument from a PC by means of the interface.



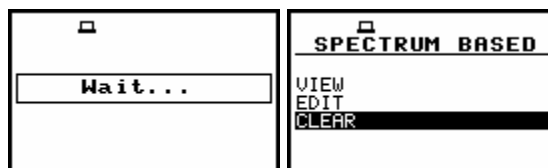
SPECTRUM BASED FILTER window; the CLEAR position selected

In order to enter the sub-list the user has to select in the **SPECTRUM BASED FILTER** sub-list the **CLEAR** text, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>. The selection of the position in this sub-list is performed by means of the <◀>, <▶> push-buttons. The 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.



CLEAR windows, the selection of the filters to be cleared

After this, the **WAIT** text appears on the display and the instrument returns to the **SPECTRUM BASED** window. The **CLEAR** sub-list is also closed and the instrument returns to the **SPECTRUM BASED** window after pressing the <ESC> push-button (without taking any action).



Displays during and after the execution of CLEAR operation

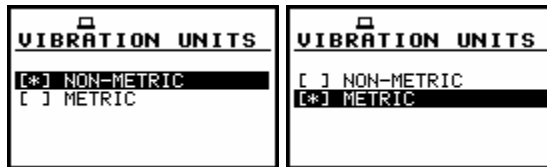
## 9.27 Selection of the vibration units - VIBRATION UNITS

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



SETUP list, the **VIBRATION UNITS** text highlighted (displayed inversely)

It is possible to select the **NON-METRIC** units (e.g. g, ips, mil etc.) or **METRIC** units (e.g. m/s<sup>2</sup>, m/s, m 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.



VIBRATION UNITS windows with the available positions

## 9.28 Warnings selection - WARNINGS

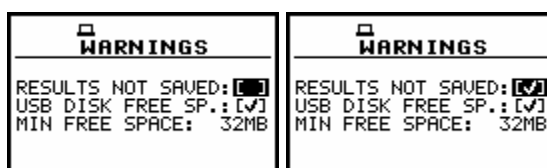
The **WARNINGS** enables the user to select the messages, which could be displayed during the operation of the instrument. In order to enter the window the user has to select the **WARNINGS** text in the **SETUP** list, using the <▲>, <▼> (or <◀>, <▶>) push-buttons and press the <ENTER>. This window contains only one position.



SETUP list, the **WARNINGS** text highlighted (displayed inversely)

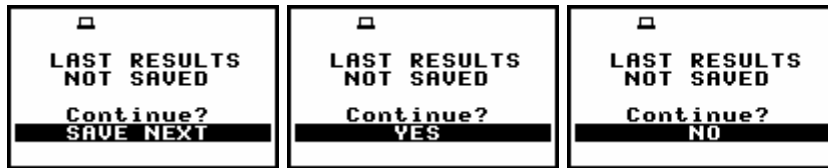
### 9.28.1 Saving the measurement results in a file - RESULTS NOT SAVED

In order to switch on the displaying of the message the user has to place, by means of the <◀>, <▶> push-buttons, the special character in the warning's position. The window 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).



WARNINGS windows; **RESULTS NOT SAVED** selected

When the position is set to be active the special warning can be displayed 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.

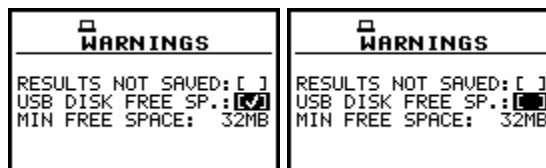


Displays with LAST RESULTS NOT SAVE warning

The question **Continue?** appears with the warning message. The default value of the **CONTINUE** position is **SAVE NEXT**. After pressing the **<ENTER>** push-button the instrument saves last results with the name number increased by one. Using the **<◀>**, **<▶>** push-buttons one can change the value of the **CONTINUE** position to **YES** or **NO**. If **YES** is chosen (to confirm the change the **<ENTER>** should be pressed), the instrument returns to the active mode of result presentation starting the new measurement process. If **NO** is chosen (to confirm the change the **<ENTER>** should be pressed), the instrument returns to the active mode of measurement result's presentation without starting the new measurement process.

### 9.28.2 Checking free space on the USB disk - USB DISK FREE SP.

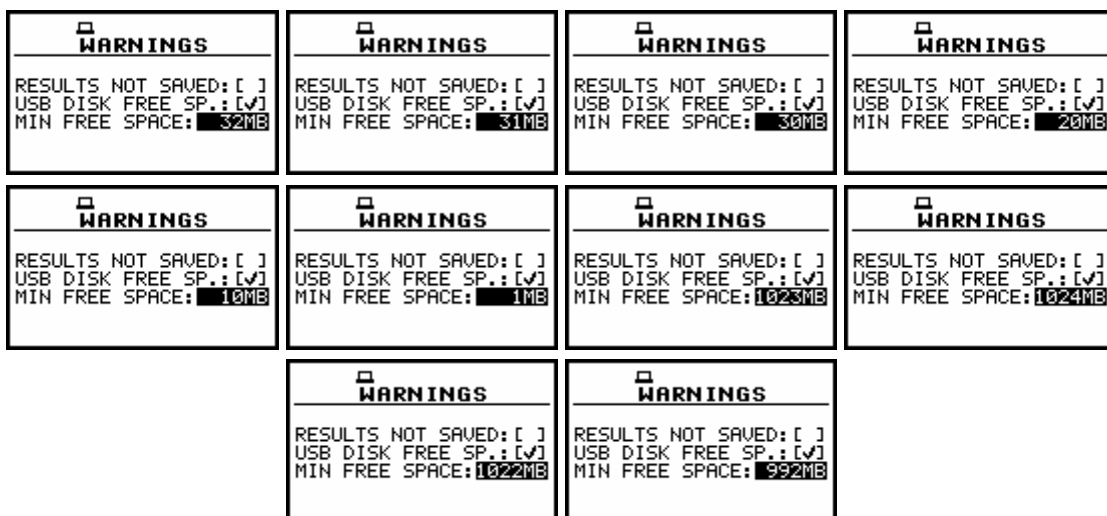
In order to switch on the displaying of the message the user has to place, by means of the **<◀>**, **<▶>** push-buttons, the special character in the warning's position. The window is closed and the instrument returns to the **SETUP** list after pressing the **<ENTER>** (with the confirmation of a change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



WARNINGS windows; USB DISK FREE SP. selected

### 9.28.3 Minimum USB disk memory free space setting - MIN FREE SPACE

In this line, the user can determine the amount of the USB disk memory free space.



WARNINGS windows; MIN FREE SPACE selection

The selected limit has to be within the range [1 MB, 1024 MB]. If the available memory is not greater than that limit, the warning will be displayed. The limit is set by means of the <◀>, <▶> push-buttons with the step equal to one MB. The step is increased up to ten MB, pressing the <◀>, <▶> push-buttons together with the <SHIFT> one. The window 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 exemplary warning is presented below. The return to the programme execution is done after pressing any push-button except the <SHIFT> and <ALT>.



Display with USB DISK FREE SPACE warning