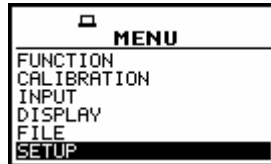


9 SETUP MENU - SETUP

The **SETUP** list (window) contains different elements. Some of them are directly related with dose/sound 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**,
- select from the main list, using the <<>, <>> push-buttons, the **SETUP** text (highlight it),
- press the <ENTER> push-button.



Display in the main list; **SETUP** text highlighted

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

LANGUAGE	it enables the user to set language of the user interface.
CLEAR SETUP	it enables the user to return to the default, factory setup.
DAY TIME LIMITS	it enables the user to select the hours limiting day and night for the calculation of the Lden result.
EXPOSURE TIME	it enables the user to define the exposure time used for the LEPd measurement and other DOSE METER results.
EXTERNAL I/O SETUP	it enables the user to select the available functionality of the Ext. I/O port.
KEYBOARD	it enables the user to switch on/off the KEY LOCK and to set the operating mode of the <Shift> push-button.
MICROPHONE	it enables the user to set on or off the compensation filter.
RMS INTEGRATION	it enables the user to select the way of integration for the "family" of the LEQ measurements.
RTC	it enables the user to set the Real Time Clock of the instrument.
STATISTICAL LEVELS	it enables the user to select ten statistic levels to be saved in the files with the main results.
TIMER	it enables the user to set the Timer function.
WARNINGS	it enables the user to switch on or off the warnings that can be displayed during the operation of the instrument.

In each available position any change is performed by means of the <<>, <>> push-buttons or <<>, <>> push-buttons pressed together with <Shift>. 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.



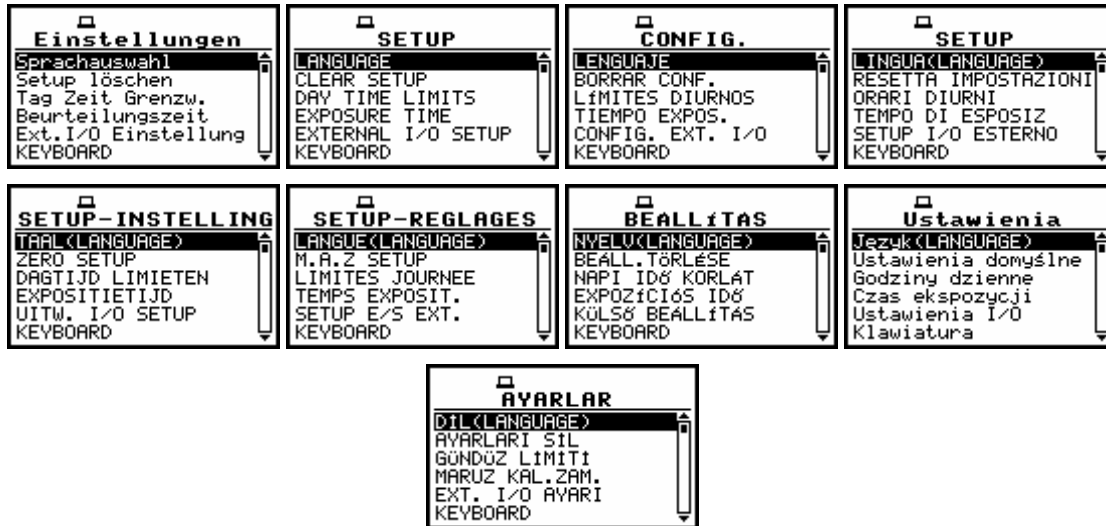
SETUP list of the instrument

9.1 Setting the language of the user interface - LANGUAGE

The **LANGUAGE** enables one to select the language of the user interface.



SETUP window with LANGUAGE text highlighted and LANGUAGE windows with all available languages



Exemplary displays with the various available language versions of the user interface

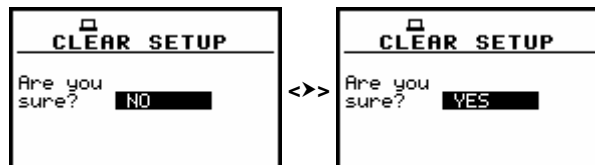
9.2 Return to the factory settings - CLEAR SETUP

The **CLEAR SETUP** enables the user to return to the default set up of the instrument.



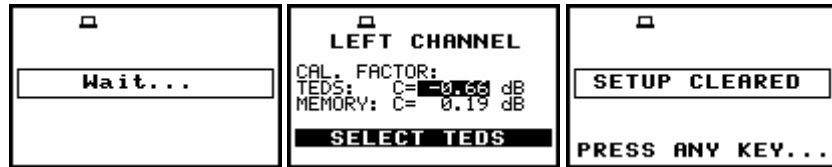
SETUP window with CLEAR SETUP text highlighted

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 CLEAR SETUP execution

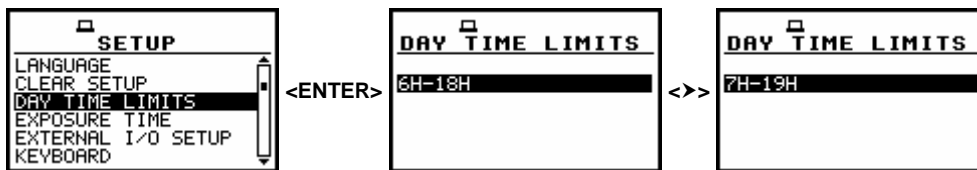
During the clearing process the message **WAIT...** is displayed. Then the request about choosing calibration factor occurs on the display. This request does not appear when the **TEDS** calibrator factor is equal to 0. It is possible to select calibration factor stored in the microphone (**TEDS**) or the calibrator factor obtained by last calibration (**MEMORY**). Next, the **SETUP CLEARED** message is displayed and the instrument waits for the reaction of the user (**PRESS ANY KEY**).



Displays during and after the execution of CLEAR SETUP function

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, 4-hours evening and night. These limits are used for the calculation of the **Lden** function (cf. App. D). Two options are available: **6H-18H** and **7H-19H**.



SETUP window with DAY TIME LIMITS text highlighted and displays with available DAY TIME LIMITS

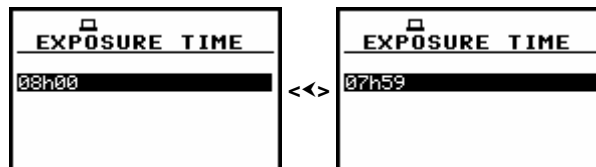
9.4 Exposure time setting - EXPOSURE TIME

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 **LEP_d** that is also calculated in the **SLM** mode (cf. App. D for the definitions of the functions).



SETUP window with EXPOSURE TIME text highlighted

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 minute.



EXPOSURE TIME setting

9.5 Available parameters of the Ext. I/O port selection - EXTERNAL I/O SETUP

The **EXTERNAL I/O SETUP** enables the user to select the available functionality of the extended I/O port. Next, the user should select proper channel to made **EXT. I/O** settings.



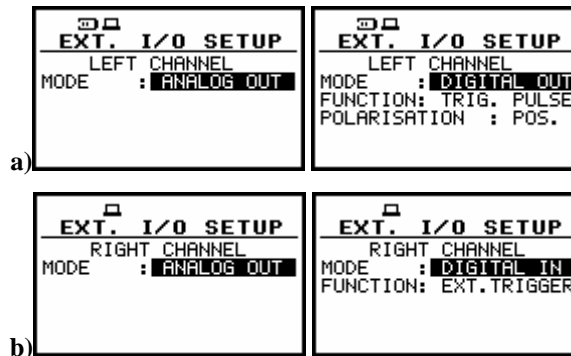
SETUP list with EXTERNAL I/O SETUP text highlighted and channel selection in EXT. I/O SETUP window

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

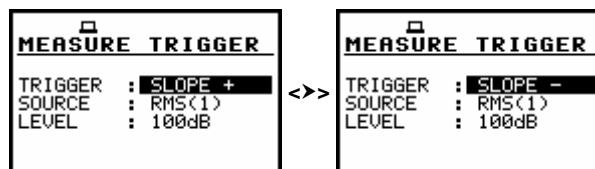
- The output of the analogue signal (**ANALOG OUT**) transmitted from the input of the instrument to its output without any digital processing (i.e. filtering).
- The input of the digital signal used as an external trigger to start the measurements (**DIGITAL IN**) in the "slave" instrument; (this mode is available for **RIGHT CHANNEL**).
- The digital output (**DIGITAL OUT**) used for triggering other "slave" instrument from the "master" one (this mode is available for **LEFT CHANNEL**).
- 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.



EXTERNAL I/O SETUP windows; MODE selection in LEFT CHANNEL (a) and RIGHT CHANNEL (b)

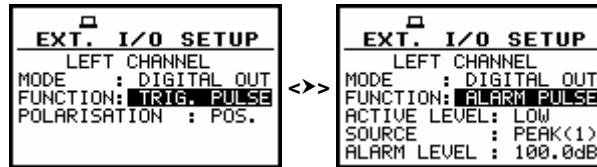
In the case of **DIGITAL IN (RIGHT CHANNEL)** selection the signal appearing on the **Ext. I/O** socket will be treated as the external trigger if the **EXT. I/O** is chosen (*path: INPUT / TRIGGER SETUP / MEASURE TRIGGER / SOURCE / EXT. I/O*) and it can be set only if **SLOPE +** or **SLOPE -** was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



MEASURE TRIGGER windows; SOURCE selection

9.5.2 Digital output-function selection of the Ext. I/O socket in left channel - FUNCTION

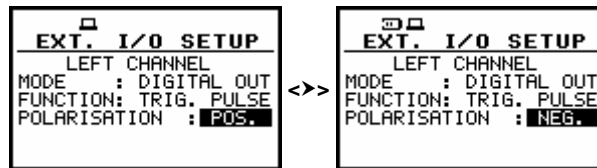
In the **FUNCTION**, it is possible to set the function of the digital output of the **Ext. I/O** socket. The socket can be used as the source of the trigger pulse (**TRIG. PULSE**) which starts the measurement in another "slave" instrument linked to the "master" one or the alarm signal appears there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



EXTERNAL I/O SETUP windows; FUNCTION selected

9.5.3 Polarisation selection of the digital output signal - POLARISATION

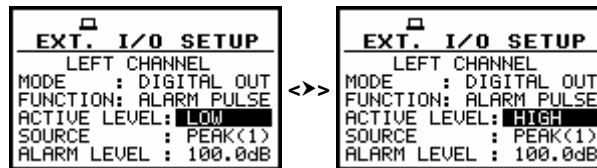
In the **POLARISATION**, it is possible to select which polarisation of the signal (negative or positive) will be valid.



EXTERNAL I/O SETUP windows; 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).



EXTERNAL I/O SETUP windows; ACTIVE LEVEL selection

9.5.5 Source signal selection for the alarm pulse generation - SOURCE

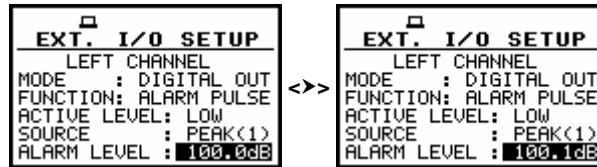
In the **SOURCE**, it is possible to select the measurement result which level should be checked. If the measured result level is greater than selected alarm level – the instrument will generate alarm signal on the **Ext. I/O** socket. The measurement results from the first profile: **PEAK(1)**, **SPL(1)**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



EXTERNAL I/O SETUP windows; SOURCE selection

9.5.6 Alarm level selection on the digital output of Ext. 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] and can be decreased / increased with 0.1 dB step.



EXTERNAL I/O SETUP windows; ALARM LEVEL setting

9.6 Selection of keyboard settings - KEYBOARD

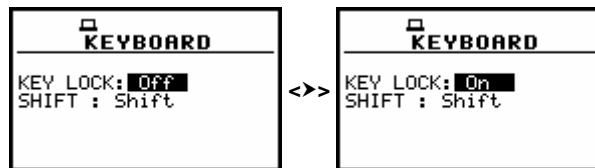
In the **KEYBOARD**, it is possible to switch on the key lock and to select the **<Shift>** push-button working mode.



SETUP window with KEYBOARD text highlighted

9.6.1 Switching the key lock on - KEY LOCK

The **KEY LOCK** is switched on after selecting **On** in the **KEY LOCK** position.

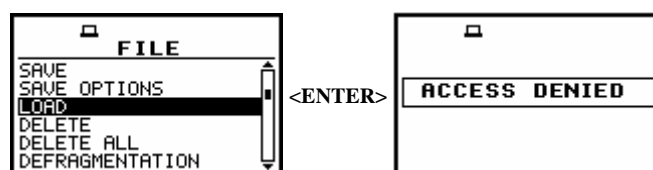


KEYBOARD windows; available KEY LOCK settings

After setting **KEY LOCK** to **On** the user can still make settings in the instrument. When the measurement starts the **KEYBOARD LOCKED** message appears on the display and the access to the **MENU** window is locked. The results will be saved automatically. After the measurement, the access to the files by instrument interface is denied. It is also not possible to **LOAD SETUP** or **DELETE SETUP**. In order to get access to the files the user has to download the files from the instrument to a PC using **SvanPC+**. The **KEY LOCK** may be switched off after the measurement, but the access to the files will be unlocked only after downloading the files to a PC.



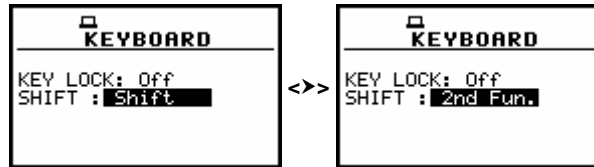
Display after the beginning of measurement when the Key lock is ON



Denied access to the files after switching **KEY LOCK** On

9.6.2 <Shift> push-button working mode selection - SHIFT

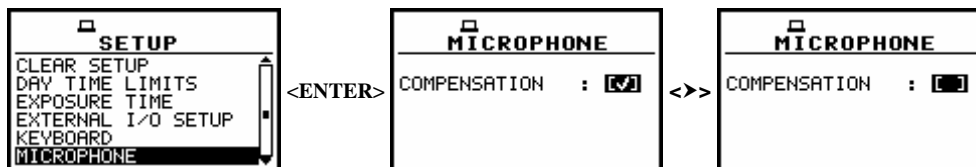
In the **SHIFT**, the user can choose between **2nd Fun.** and **Shift**. When the **Shift** text is selected, the push-button with this name operates as in the keyboard of a computer – in order to achieve the desired result, the second push-button has to be pressed in conjunction with the **<Shift>**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



KEYBOARD windows; available SHIFT settings

9.7 Switching on/off the compensation filter - MICROPHONE

In the **MICROPHONE** window, 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. C. This filter compensates the non-linearity of the microphone's frequency characteristic.



SETUP window with MICROPHONE text highlighted and MICROPHONE windows; deactivation of COMPENSATION filter

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

The **RMS INTEGRATION** enables the user to select the detector type for the **LEQ**, **Lden**, **LEPd**, **Lxx** and **SEL** results. Two options are available: **LINEAR** and **EXPONENTIAL**.



SETUP window with RMS INTEGRATION text highlighted and displays with the available options of 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 different modes of measurement results 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: INPUT / PROFILE x / DETECTOR: Fast, Slow or Impulse*)).

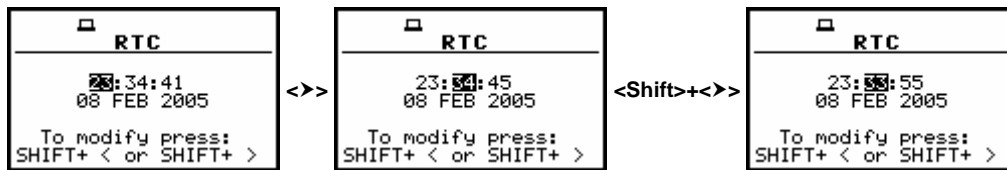
9.9 Programming the instrument's internal Real Time Clock - RTC

The **RTC** (Real Time Clock) enables one to programme the time and date in the instrument.



SETUP window with RTC text highlighted

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



RTC windows with the time selection



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



Notice: The **RTC** window will appear on the display after power on when the **RTC** settings were lost, i.e. in the case of long lack of power source (batteries or USB interface). In such a case the work of **RTC** will be held up for minimum 1 hour.

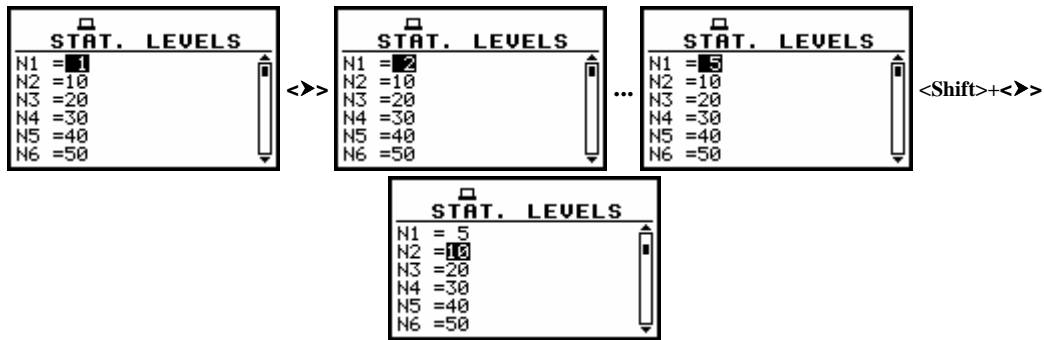
9.10 Setting ten statistical levels - STATISTICAL LEVELS

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



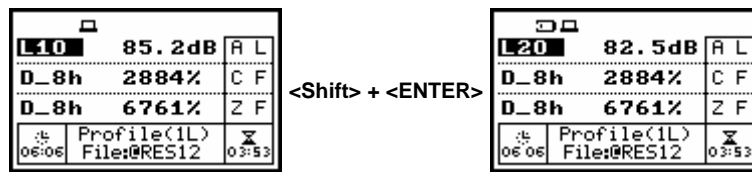
SETUP window with STATISTICAL LEVELS text selected

The default statistical 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 <<> or <>> push-button pressed together with <Shift>. 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.



STATISTICAL LEVELS windows

The selected values of the statistical levels are visible in 3 profiles mode (**DOSE METER** mode). The selection of the statistical level is made by pressing **<ESC>** push-button (**<Shift>** and **<ENTER>**). In the **SLM** mode the view and selection of statistical levels is also available in one profile mode.



Selection of statistical level (results) in 3 PROFILE mode



Selection of statistical level (results) in one profile mode in SLM modes

9.11 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 can perform the measurements using the setup, which was used before its switching off.



SETUP window with **TIMER** text highlighted

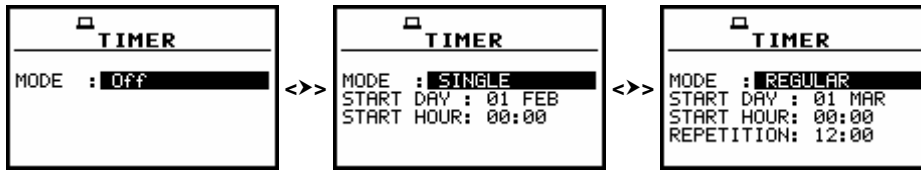


Notice: In the case of measurements triggered by the **TIMER** option the calibration factor stored in TEDS is used.

9.11.1 Selecting the mode of the timer function - MODE

The timer can be switched off – **Off**, switched on only once – **SINGLE** or switched on many times – **REGULAR** with the period between two consecutive measurements set in the **REPETITION** line.

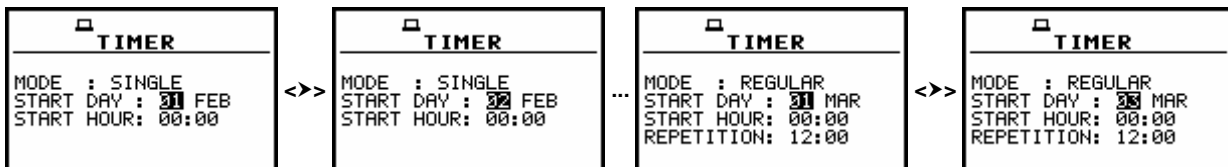
The selected value has to be confirmed by pressing the **<ENTER>** push-button, which causes the simultaneous return to the **SETUP** list. All settings are ignored after the return to the **SETUP** list by pressing the **<ESC>** push-button. In the case the timer function is active (**SINGLE** or **REGULAR**) the clock icon starts blinking up to switching timer function off or up to finishing programmed measurements.



TIMER windows; mode selection

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

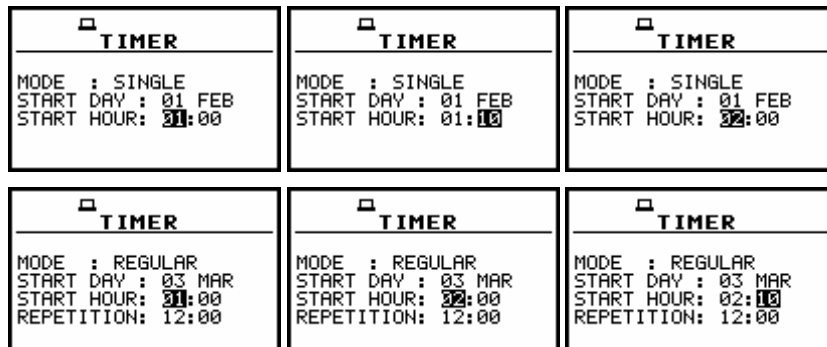
The **START DAY** determines the date of the measurement start. The timer can be programmed up to one month ahead and during the date setting the current state of the **Real Time Clock** is taken into account.



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

9.11.3 Setting hour of the instrument's switch on - START HOUR

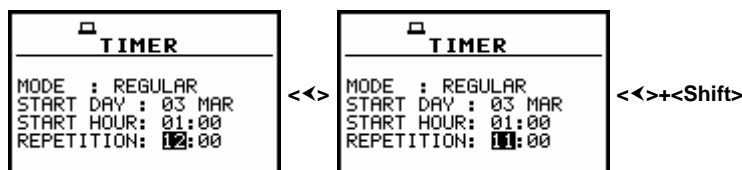
The **START HOUR** determines hour of the measurement start.



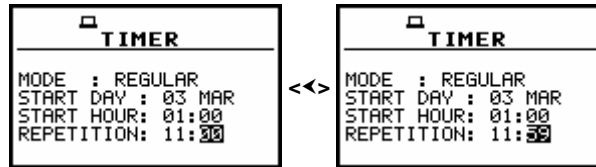
TIMER windows; setting hour and minute of the instrument's switch on

9.11.4 Selecting the mode of the timer function - REPETITION

The **REPETITION** of the timer function is available when the **REGULAR** mode is selected. This parameter can be programmed from **00:00** up to **99:59**.



TIMER windows; setting REPETITION parameter



TIMER windows; setting REPETITION parameter (cont.)

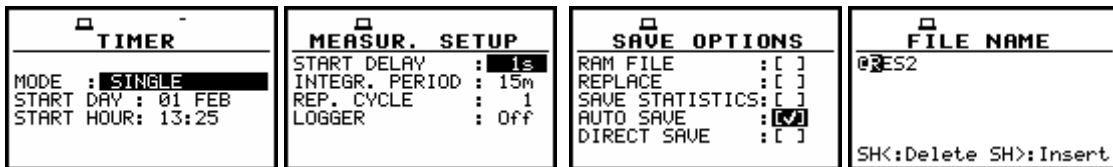
9.11.5 Description of the exemplary timer function execution

The **TIMER** function is used to programme the instrument's switch on at the preset time and perform the measurements with the parameters set in the **INPUT** window.

Let's assume that the user want to switch on the instrument the 1st of February, at 13:25, measure sound during 15 minutes without using logger and save the results in a file @RES2.

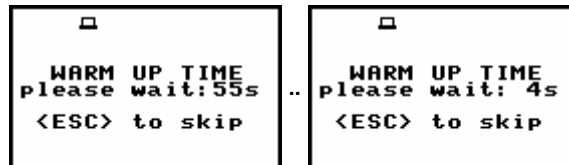
In order to do this the user has:

- to set the parameters of the **TIMER** function (*path: SETUP / TIMER*),
- to set the measurement parameters (*path: INPUT / MEASUREMENT SETUP*),
- to activate the **AUTO SAVE** function (*path: FILE / SAVE OPTIONS*),
- to name the file (the **FILE NAME** window is opened after switching on the **AUTO SAVE** function) and
- to switch off the instrument.



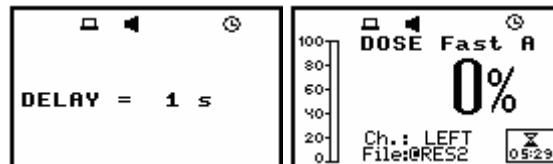
Exemplary settings made for the desired execution of **TIMER** function

The instrument will be switched on the 1st of February 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 finally – the instrument is switched off.



Displays during the executing of **TIMER** function (**TIMER** icon is active)



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.



Notice: In the case when the **AUTO SAVE** option is switched off the measurement results will be saved automatically in the file with the @Timer@ name. If the @Timer@ file exists already, the new file replaces the old one.

9.12 Warnings selection - WARNINGS

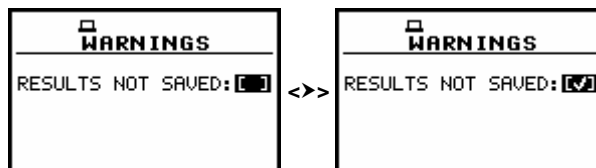
The **WARNINGS** enables the user to select the messages, which could be displayed during the operation of the instrument. This window contains only one position.



SETUP window with WARNINGS text highlighted

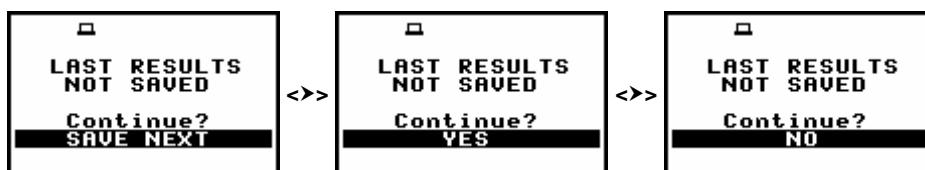
9.12.1 Saving the measurement results in a file - RESULTS NOT SAVED

In order to switch on the displaying of the message the user has to place the special character in the warning's 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**. 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 **<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 measurement result's 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.