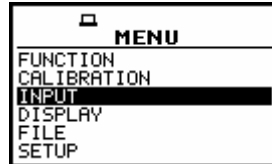


6 MEASUREMENT PARAMETERS SETTING - INPUT

In order to open the **INPUT** list (window) the user has to:

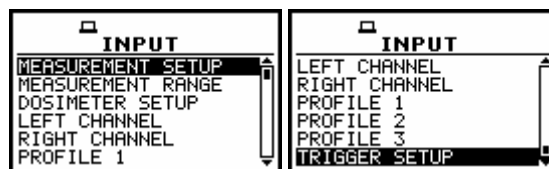
- press the **Menu**,
- select from the main list, using the <<>, <>> push-buttons, the **INPUT** text,
- press the <ENTER> push-button.



Main list with INPUT text selected

The **INPUT** list contains following positions:

MEASUREMENT SETUP	it enables the independent programming of the measurement parameters.
MEASUREMENT RANGE	it informs the user about the input range.
DOSIMETER SETUP	it enables the user to set dosimeter parameters.
LEFT (RIGHT) CHANNEL	it enables to select the logger results to be saved in the logger memory.
PROFILE 1 (2, 3)	it enables to select detector time constant for each profile. In the case of SLM modes, the PROFILE x are the sub-lists of LEFT / RIGHT channel window and weighting filter selection is there possible.
SPECTRUM	it enables to set the parameters of the frequency analysis of the signal and it is available on the display in the DOSE & 1/1 OCTAVE or SLM & 1/1 OCTAVE mode.
TRIGGER SETUP	it enables to select the parameter of the trigger function.

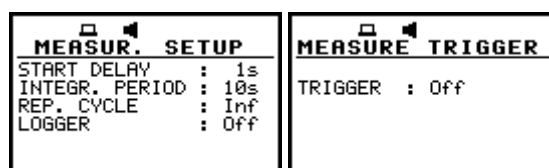


INPUT window in DOSE METER mode

In each available position the selection of a parameter is performed by means of the <<>, <>> push-buttons, the change of the highlighted line in a window is made by pressing <<>, <>> push-buttons 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.



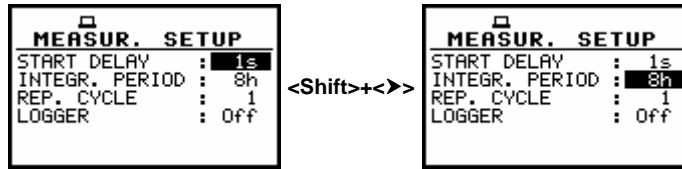
Notice: Any parameter in the **INPUT** list can be changed only when the instrument does not execute a measurement. The possibility of a change is signalled by highlighting a parameter's field. Moreover, normally displayed field means that the parameter cannot be changed. The "Loudspeaker" icon indicates that the instrument is performing the measurements.



Exemplary displays with not active sub-lists of INPUT list

6.1 Selection of measurement parameters - MEASUREMENT SETUP

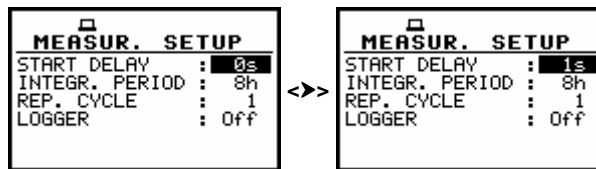
The **MEASUREMENT SETUP** consists of the parameters, which can be set or switched on / off, namely the delay of the start of the measurements (**START DELAY**), the integration period (**INTEGR. PERIOD**), the repetition of the measurement cycles (**REP. CYCLE**) and the logger activation or deactivation (**LOGGER**). If the logger is active, the user can set the logging period (**LOGGER STEP**) and give a name to the logger's file (**LOGGER NAME**).



MEASUREMENT SETUP windows

6.1.1 Setting time delay before the start of measurements - START DELAY

The **START DELAY** defines the delay period from the pressing the **Start / Stop** to the start of the measurements (the digital filters of the instrument analyse constantly the input signal even when the measurements are stopped). This delay period can be set from **0 second** to **60 seconds**.



MEASUREMENT SETUP windows; the setting of **START DELAY** with 1-second step



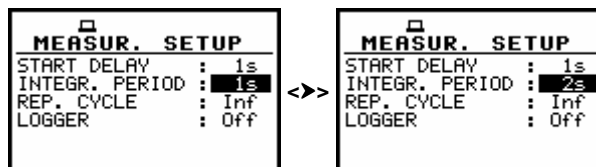
Notice: The minimum delay period is equal to 0 second. In the case of **CALIBRATION** measurement, the delay period is equal to 5 seconds.

6.1.2 Setting the integration period - INTEGR. PERIOD

The **INTEGR. PERIOD** defines the period in which the signal is being averaged during the sound level measurements. The definitions of the measurement results in which the integration period is used is given in App. D.

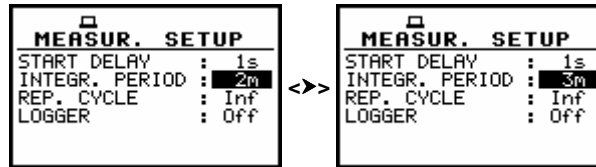
The integration period (**INTEGR. PERIOD**) can be set

- From **1 s** to **59 s** (with **1-second** step).



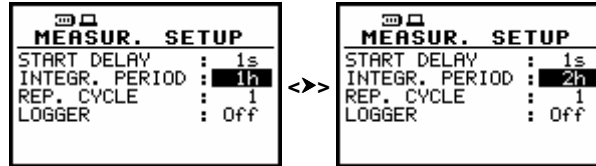
MEASUREMENT SETUP windows; **INTEGR. PERIOD** setting with 1-second step

- From **1 m** (min) to **59 m** (with **1-minute** step).





MEASUREMENT SETUP windows; INTEGR. PERIOD setting with 1-minute step

- From 1 h to 8 h (with 1-hour step).



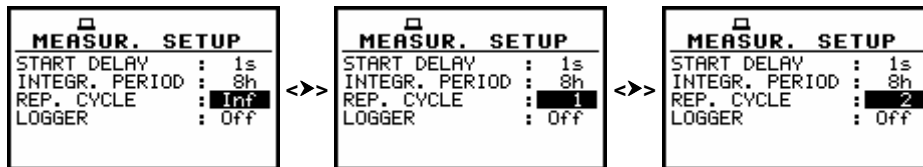
MEASUREMENT SETUP windows; INTEGR. PERIOD setting with 1-hour step

 **Notice:** In the case of switching on the **AUTO SAVE** function, the minimum value of the integration period should be equal to 10 seconds. In the case of one measurement cycle, the minimal value of the integration period is not required.

 **Notice:** In the **SLM** the integration period can be set up to 24 hours and **Inf** (infinity).

6.1.3 Setting the number of repetition of measurement cycles - REP. CYCLE

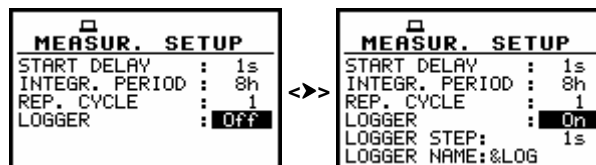
The **REP. CYCLE** defines the number of cycles (with the measurement period defined in the **INTEGR. PERIOD**) which should be performed by the instrument. The **Inf** value denotes the infinite repetition of the measurements (until the pressing the **Start / Stop** or after receiving remotely the control code). The **REP. CYCLE** number values are within the limits [1, 1000].



MEASUREMENT SETUP windows; REP. CYCLE setting with the step equal to one

6.1.4 Logger functionality switching On/Off - LOGGER

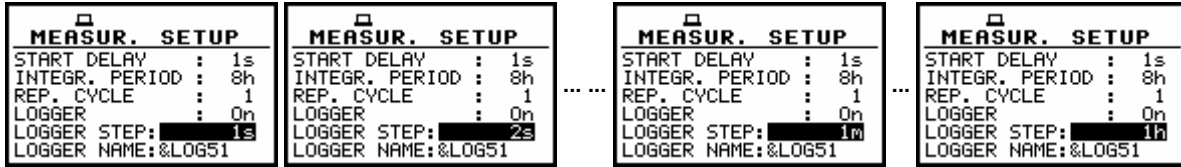
The **LOGGER** switches on and off the functionality, which enables the user to save in a file the selected results from three profiles with the defined period.



Displays with the deactivated and activated **LOGGER**

6.1.5 Setting period between two writings to the logger's file - **LOGGER STEP**

The **LOGGER STEP** defines the period of the data logging in a file. It can be set from 1 second to 59 seconds, from 1 minute to 59 minute and up to 1 hour.



LOGGER STEP setting; available values from 1 second to 1 hour

6.1.6 Logger file name edition - **LOGGER NAME**

The **LOGGER NAME** enables the user to edit the logger file. The default one is &LOG. The name cannot be longer than eight characters including not edited first one character &.

The name edition is performed similarly to the name edition in the **FILE NAME** line of the **SAVE** or **SAVE SETUP** window.

The edition process is presented below. To edit highlighted character use <<>, <>> push-buttons. To select the proper position of the cursor use the <Shift> and <>> push-buttons.



LOGGER NAME edition in MEASUREMENT SETUP

The edited name is accepted and the file is saved after pressing the <ENTER> push-button. The special warning is displayed in the case when the file with the edited name already exists in the memory. The instrument waits then for a reaction of the user (any push-button should be pressed except the <Shift>).



Displays during the attempt of overwriting the existing file

The main measurement results (cf. App. B):

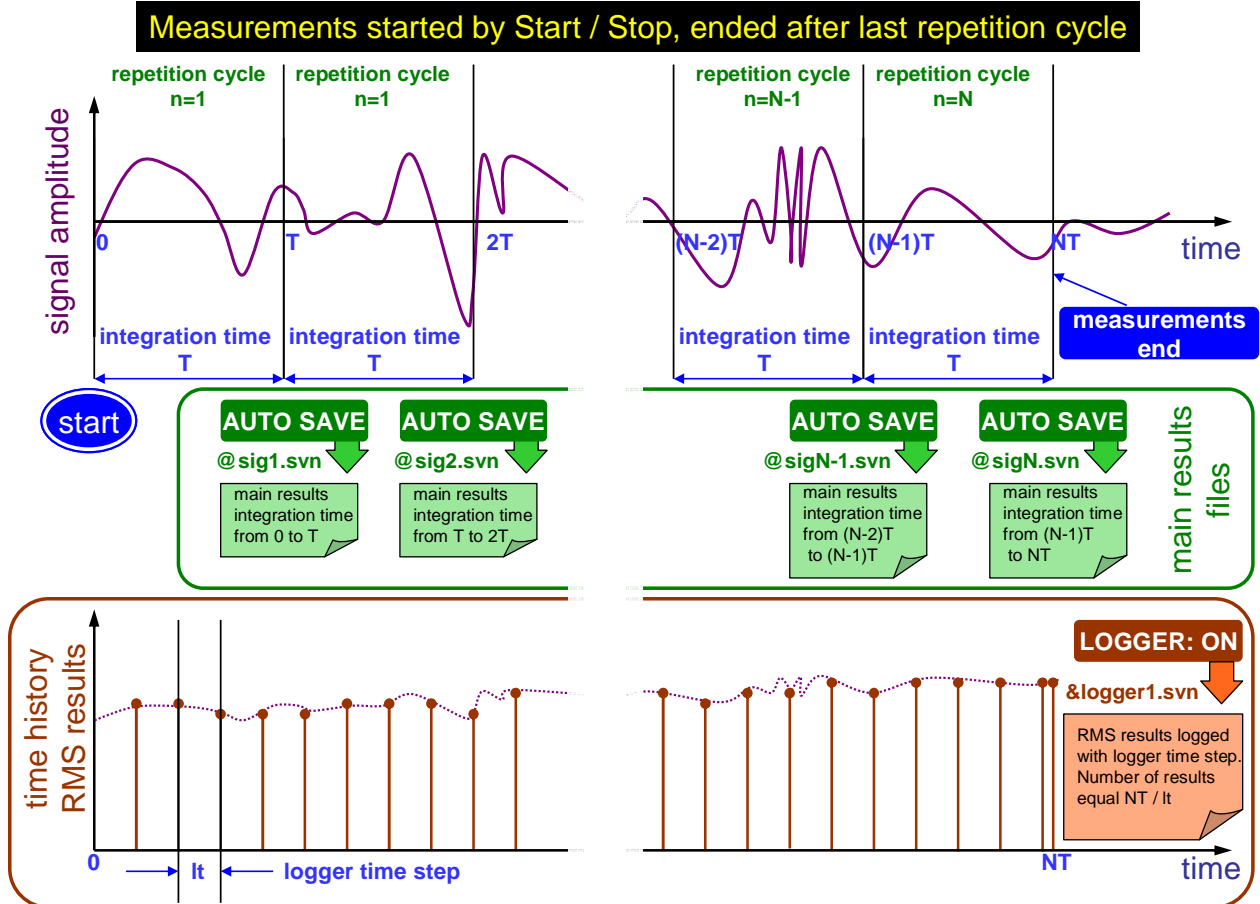
- **DOSE, D_8h, LEPd, LAV, LEQ, PEAK, MAX, E, SEL, E_8h, SEL8, PSEL, PCTC, PCTP, RMS** in the case of **DOSE** modes
- **SPL, LEQ, SEL, Lden, LEPd, Ltm3, Ltm5, Lxx, OVL, PEAK, MAX, MIN** for **SLM** modes

are calculated in the period set in the **INTEGR. PERIOD**. These results can be saved in the result files of the instrument's memory by **AUTO SAVE** function (*path: FILE / SAVE OPTION / AUTO SAVE*) or **SAVE** or **SAVE NEXT** function (*path: FILE / SAVE*).

The name of the file for that operation is set in the **FILE NAME** window (*path: FILE / AUTO SAVE / FILE NAME*). The name of the file containing the main results is changed after each saving.

In the same, when the **LOGGER** is **On**, the partial measurement results are calculated in the period set in the **LOGGER STEP**. Up to 12 results can be logged simultaneously from three independent profiles of the instrument (**PEAK / MAX / MIN / RMS** results from each profile (*path: INPUT / LEFT (RIGHT)*)).

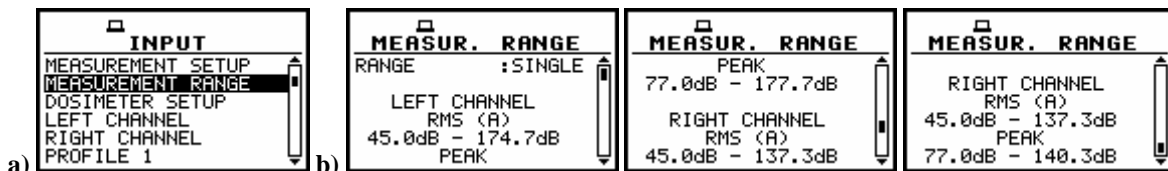
CHANNEL / PROFILE x , where $x = 1, 2$ and 3) with time step down to 1 s. These results are saved in one logger's file memory of the instrument in all modes of the instrument. The name of the file is set in the **LOGGER NAME**. The registration in the logger's memory is stopped after the period, which is equal to **INTEGR. PERIOD** multiplied by **REP. CYCLE**, after pressing the **Start / Stop** or after stopping the measurements remotely.



Relations between INTEGR. PERIOD and LOGGER STEP

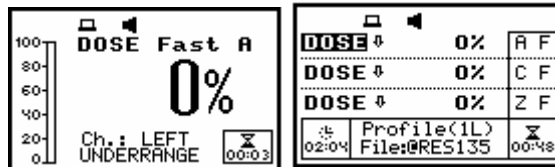
6.2 Measurement range info - MEASUREMENT RANGE

The **MEASUREMENT RANGE** displays the info about the meter's measurement range. The instrument operates in **one, wide** dynamic range and **no other ranges are available**. The detailed description of the measurement range parameters is given in App. C.



INPUT window with MEASUREMENT RANGE selected (a) and opened (b)

In the case when the level of the measured signal is too low in the relation to the measuring range (when the level of the input signal is under the linearity of the range declared in App. C, so-called **UNDERRANGE**) in one profile mode the message **UNDERRANGE** is displayed on the bottom of the display. The arrows directed down are used for this reason in **3 PROFILES** mode.

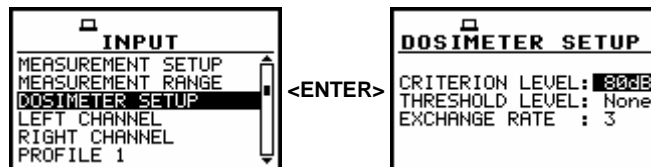


Displays when the level of the signal is too low

6.3 Selection of dose meter parameters - DOSIMETER SETUP

The **DOSIMETER SETUP** is accessible in the **INPUT** window in the **DOSE METER** and **DOSE & 1/1 OCTAVE** mode but it is not present in the **SLM** or **SLM & 1/1 OCTAVE** mode.

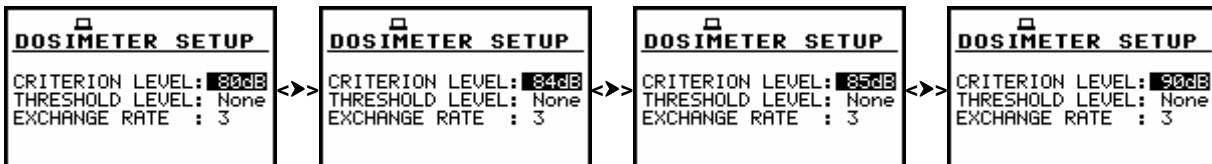
The **DOSIMETER SETUP** consists of the parameters, which influence the calculation of the dose meter results: the **CRITERION LEVEL**, **THRESHOLD LEVEL** and **EXCHANGE RATE** (the definitions of the dose meter results are given in App. D).



DOSIMETER SETUP selected in INPUT window and DOSIMETER SETUP window

6.3.1 Setting criterion sound level - CRITERION LEVEL

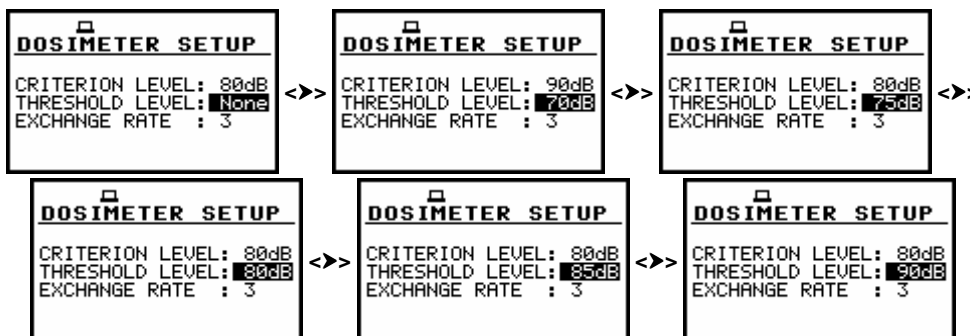
The criterion sound level influences the calculations of the **DOSE** and **D_8h** results. The available values are as follows: **80 dB**, **84 dB**, **85 dB** or **90 dB**.



DOSIMETER SETUP windows with CRITERION LEVEL selection

6.3.2 Setting criterion sound level - THRESHOLD LEVEL

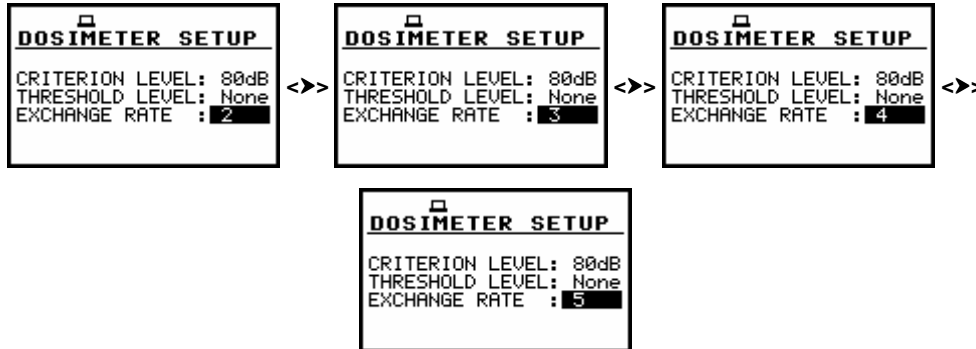
The threshold level influences the calculations of the dose meter results, namely **DOSE**, **D_8h** and **LAV**. The available values are as follows: **None**, **70 dB**, **75 dB**, **80 dB**, **85 dB** or **90 dB**.



DOSIMETER SETUP windows with THRESHOLD LEVEL selection

6.3.3 Setting criterion sound level - EXCHANGE RATE

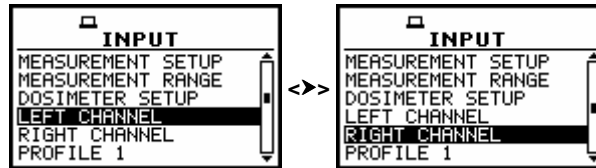
The exchange rate influences the calculations of the dose meter results, namely **DOSE**, **D_8h** and **LAV**. The exposure rate equal to three complies with ISO R 1999 "Assessment of Occupational Noise Exposure for Hearing Conservation Purposes", while equal to five complies with the American "Occupational Safety and Health Act" – OSHA. The available values are as follows: **2, 3, 4** or **5**.



DOSIMETER SETUP windows with EXCHANGE RATE selection

6.4 Setting parameters in channels - LEFT and RIGHT CHANNEL

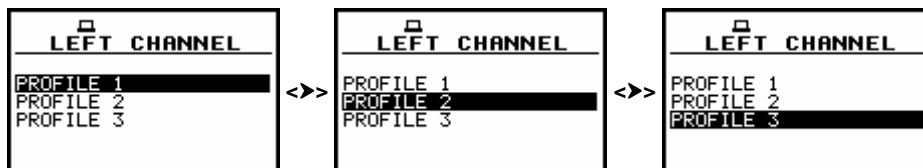
In the **LEFT / RIGHT CHANNEL**, it is possible to select logger results to be recorded from each selected profile in the logger memory of the instrument.



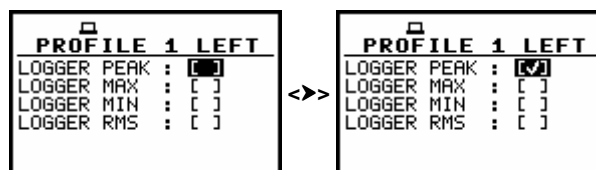
INPUT windows, LEFT CHANNEL and RIGHT CHANNEL texts selected

6.4.1 Logger results selection in profiles - PROFILE x

Up to four measurement results from each profile can be saved in the logger's file of the instrument: **LOGGER PEAK**, **LOGGER MAX**, **LOGGER MIN**, **LOGGER RMS**. In the case of **SLM** modes, in this window the user can select also the weighting **FILTER** and **DETECTOR** time constant.

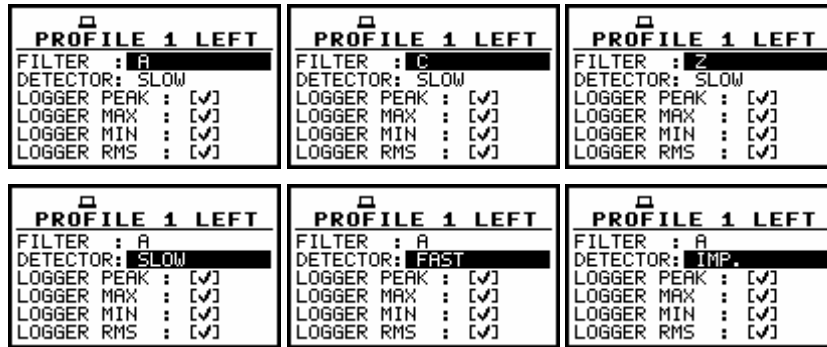


LEFT CHANNEL windows; PROFILE x selection



PROFILE 1 LEFT; LOGGER result selection

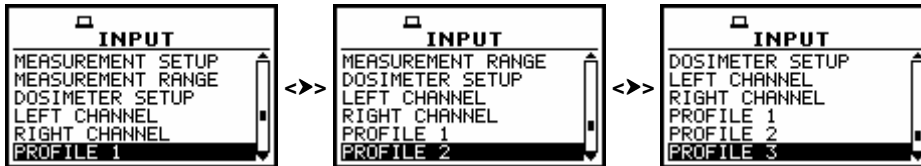
In the case of **SLM** modes, the user can select weighting **FILTER** and **DETECTOR** time constant.



PROFILE 1 LEFT windows in SLM modes; available weighting filters and detectors

6.5 Setting parameters in a profiles - PROFILE x

In the **PROFILE x** the RMS detector type (**DETECTOR**) can be programmed independently for each profile. The **FILTER** settings in **DOSE METER** mode are fixed. The selection of the **FILTER** is possible in **SLM** mode.



INPUT windows; PROFILE 1; PROFILE 2 and PROFILE 3 selected



Notice: The change of the profile parameters is not possible when the measurement is performed. The user has to finish the current measurement.

6.5.1 Weighting filter selection in a profile - FILTER

The following weighting filters, with the characteristics given In App. D, are implemented in the **DOSE METER** and **SLM** modes:

- **Z** type 1 according to the IEC 61672-1 standard (**PROFILE 1**)
- **A** type 1 according to the IEC 651 and IEC 61672-1 standards (**PROFILE 2**),
- **C** type 1 according to the IEC 651 and IEC 61672-1 standards (**PROFILE 3**).

6.5.2 RMS detector selection - DETECTOR

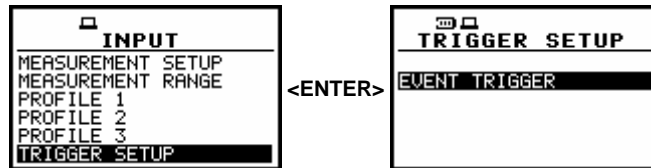
In the instrument, three RMS detectors are available: **IMPULSE**, **FAST** and **SLOW**.



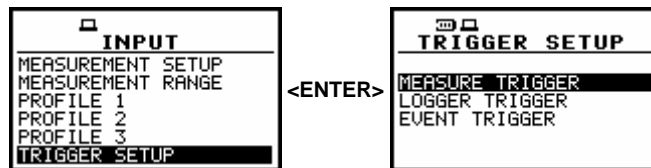
PROFILE(x) windows; the selection of the RMS detector

6.6 Triggering mode and parameters selection - TRIGGER SETUP

In order to set the parameters of the event recording the user should enter the **TRIGGER SETUP** window and next - **EVENT TRIGGER** window. In **SLM** modes, the **TRIGGER SETUP** window contents also **MEASURE TRIGGER** and **LOGGER TRIGGER** positions.



TRIGGER SETUP selected in **INPUT** window and **TRIGGER SETUP** window opened in dosimeter modes



TRIGGER SETUP selected in **INPUT** window and **TRIGGER SETUP** window opened in **SLM** modes

6.6.1 Audio-event recording - EVENT TRIGGER

The audio-event recording option enables one to save the time-domain signal. It is used exemplary when the user need to record not all the signal but only those parts which are overpassing the selected level (e.g. in the case of short time high-level noise).

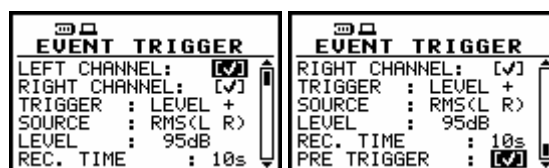
In order to perform the audio-event recording the user should select proper parameters in the **EVENT TRIGGER** window, like **LEFT CHANNEL** or/and **RIGHT CHANNEL** positions, respectively to one channel or two channel measurements.

The audio-event recording will be triggered after overpassing the level set in the **LEVEL** position. The trigger may be caused by arising or falling slope of the signal (**TRIGGER: SLOPE+**, **SLOPE-**), by overpassing the level above or below (**TRIGGER: LEVEL+**, **LEVEL-**) or by arising gradient (**TRIGGER: GRAD+**).

The result taken as a source for triggering purpose may be: **RMS** result from the first profile of the left channel (**SOURCE: RMS(P1 L)**), **RMS** result from the first profile of the right channel (**SOURCE: RMS(P1 R)**), **RMS** result from the first profile of the left or right channel (depending on, which one occurs firstly) and as the source may be also a signal from extended **I/O** socket (**SOURCE: EXT.I/O**).

The time of signal recording after its triggering is set in **REC. TIME** position and the instrument will wait for the overpassing of the signal's level until the end of the measurement. Each event will trigger record which lasting period is set in **RECORDING TIME** position. If next trigger will take place before the last recording time is over, the audio-event record will be longer. For example: lets assume the **REC.TIME** = 10 seconds. After 7 seconds from the first overpassing, the next one takes place. To the end of the record will rest 3 seconds, but in the case when second overpassing takes place the record will take 17 seconds. During playback in SvanPC+ it will be presented as one 17-seconds record.

It is also possible to record the signal directly before triggering of the record (**PRETRIGGER**). Pretrigger is equal to 1 second in the case of one channel measurement and 0.5 second in the case of recording from two channels. This time is additional to the recording time.



Displays in the **EVENT TRIGGER** window

6.6.2 Trigger parameters setting - MEASURE TRIGGER

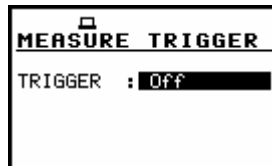
The **MEASURE TRIGGER** is a contexts sub-list which appears in **SLM** modes and in which the triggering can be switched off or on (**TRIGGER**). In the case when it is switched on the source of the triggering signal can be determined (**SOURCE**), its level (**LEVEL**) and sometimes the speed of changes (**GRADIENT**).



Displays in the MEASURE TRIGGER window

6.6.2.1 Switching the triggering on and off - TRIGGER

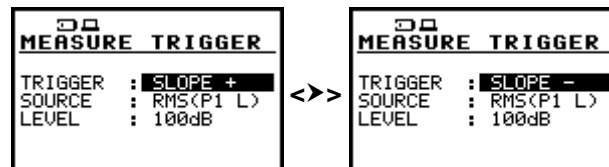
The triggering of the measurements (**TRIGGER**) can be switched off using the <<>> push-button.



MEASURE TRIGGER window

The triggering is switched on if one of its five modes is selected: **SLOPE +**, **SLOPE -**, **LEVEL +**, **LEVEL -** or **GRAD +**. The selection of the triggering mode is performed using the <<>>, <>>> push-buttons. If the instrument works with the triggering switched on, the “Antenna” icon is flashing on the display in the case when the triggering condition was not fulfilled.

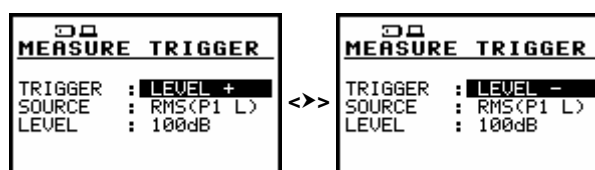
In the case when the **SLOPE +** is selected, the measurement starts when the arising signal will pass the level determined in the **LEVEL**. In the case when the **SLOPE -** is selected, the measurement starts when the falling down signal will pass the level determined in the **LEVEL**. The measurement is stopped when the conditions set in the **MEASUREMENT SETUP** are fulfilled, after pressing **Start / Stop** or after receiving the proper control code remotely.



MEASURE TRIGGER windows with SLOPE modes selected

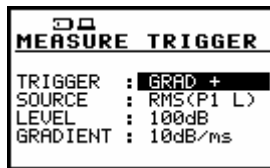
In the case when the **LEVEL +** is selected, in each second of the measurement the triggering condition is checked; the measurement is registered only when the signal has the greater level than this determined in the **LEVEL** and in the other case the measurement result is skipped.

In the case when the **LEVEL -** is selected, in each second of the measurement the triggering condition is checked; the measurement is registered only when the signal has the lower level than this determined in the **LEVEL** and in the other case the measurement result is skipped.



MEASURE TRIGGER windows with LEVEL modes selected

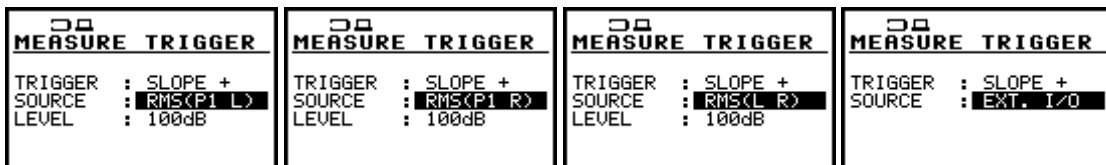
In the case when the **GRAD +** is selected, in each second of the measurement the triggering condition is checked; the measurement is registered only when the signal has the greater level than this determined in the **LEVEL** and the speed of the signal changes is not less than that selected in the **GRADIENT**. In the other case the measurement result is skipped.



MEASURE TRIGGER window with GRAD + mode selected

6.6.2.2 Selection of the triggering signal - SOURCE

In the **SOURCE** position, it is possible to select the source for triggering measurement purpose. It may be **RMS** result from the first profile of the left channel **RMS(P1 L)**, **RMS** result from the first profile of the right channel **RMS(P1 R)**, **RMS** result from the left or right channel (where the triggering conditions are fulfilled firstly) **RMS(L R)**. The measurement may be also triggered by the signal from the extended **I/O** socket. The user has to press **<ENTER>** in order to confirm the selection.



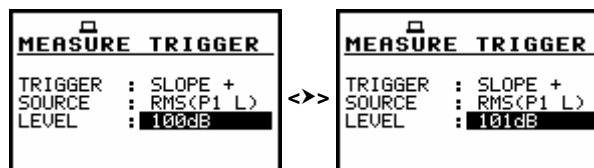
MEASURE TRIGGER window with SOURCE signal selection



Notice: In the **LEVEL METER** mode, only one signal measured in the instrument - the **RMS** detector of the first profile - can be used as the triggering signal. Additionally, the signal from **I/O** can be also used as the trigger source in the **SLOPE +** and **SLOPE -** modes.

6.6.2.3 Setting the level of the triggering signal - LEVEL

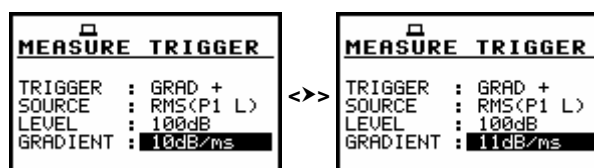
The level of the triggering signal (**LEVEL**) can be set with 1-dB step from 24 dB to 136 dB range.



MEASURE TRIGGER window with LEVEL selection in SLOPE + mode

6.6.2.4 Setting the speed of the triggering signal changes - GRADIENT

The speed of the triggering signal changes (**GRADIENT**) can be set with 1-dB/millisecond step in the range from 1 dB/ms to 100 dB/ms.



MEASURE TRIGGER window with GRADIENT selection (1 dB/ms)

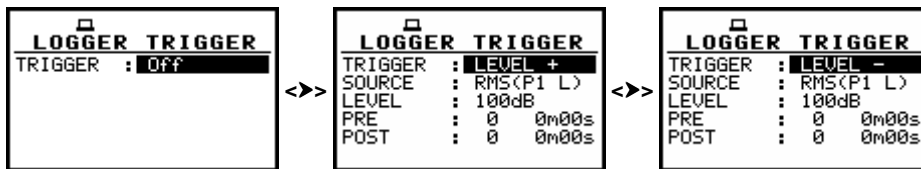
6.6.3 Trigger parameters in logger setting - **LOGGER TRIGGER**

The **LOGGER TRIGGER** parameters influence the way the measurement results are saved in the logger. The triggering in logger can be switched off or on (**TRIGGER**) in a contexts sub-list. In the case when it is switched on, i.e. the **LEVEL +** mode - the source of the triggering signal is determined (**SOURCE**), its level can be selected (**LEVEL**), the number of the results saved in the logger before the fulfilment of the triggering condition (**PRE**) and the number of the results saved in the logger after the fulfilment of the triggering condition (**POST**). If the triggering signal is greater than the selected in the **LEVEL**, the logger contains:

- the measurement results registered directly before the fulfilment of the triggering condition; time of the registration can be calculated by multiplying the value set in the **PRE** by the value taken from the **LOGGER STEP** (path: *INPUT / MEASUREMENT SETUP / LOGGER STEP*);
- all measurement results up to the moment the triggering signal falls down the **LEVEL**;
- the results registered directly after the fulfilment of the triggering condition; time of the registration can be calculated by multiplying the value set in the **POST** by the value taken from the **LOGGER STEP** (path: *INPUT / MEASUREMENT SETUP / LOGGER STEP*).

6.6.3.1 Switching the logger triggering on and off - **TRIGGER**

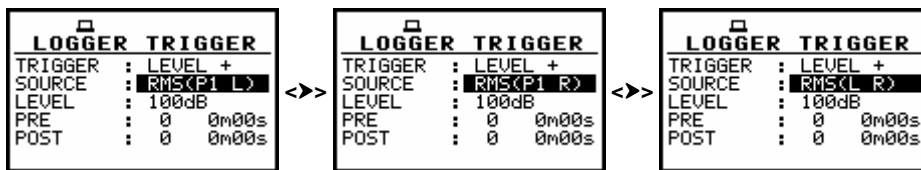
The logger triggering of measurements (**TRIGGER**) can be switched off using the <>> push-button.



LOGGER TRIGGER windows

6.6.3.2 Selection of the triggering signal in logger - **SOURCE**

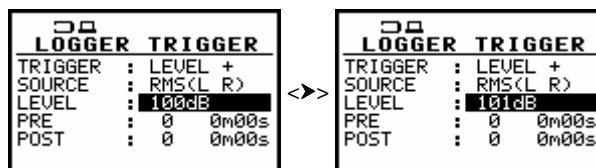
In the **SOURCE** position, it is possible to select the source for triggering measurement purpose. It may be **RMS** result from the first profile of the left channel **RMS(P1 L)**, **RMS** result from the first profile of the right channel **RMS(P1 R)**, **RMS** result from the left or right channel (where the triggering conditions are fulfilled firstly) **RMS(L R)**. The user has to press <ENTER> in order to confirm the selection.



LOGGER TRIGGER windows with not active SOURCE signal line

6.6.3.3 Setting the level of the triggering signal in the logger - **LEVEL**

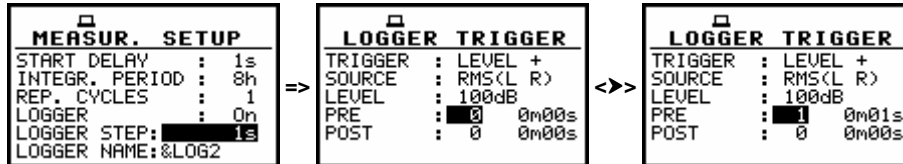
The level of the triggering signal in logger (**LEVEL**) can be set in 1-dB step in the range from 24 dB to 136 dB using the <<<, >>> push-buttons.



LOGGER TRIGGER window with LEVEL selection (1-dB step up)

6.6.3.4 Selection of the number of the results to be saved in the logger before the fulfilment of the triggering condition - PRE

In the **PRE** line the number of the results registered in the logger's file before the fulfilment of the triggering condition can be set. This number is within the limits 0..50 and can be set with the step equal to one using the <<>, <>> push-buttons.

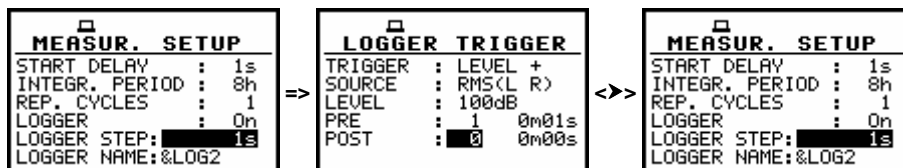


LOGGER TRIGGER windows with PRE selection

Time period of the measurements which are saved in the logger before the fulfilment of the triggering condition can be calculated multiplying the value set in the **PRE** by the value set in the **LOGGER STEP** (*path: INPUT / MEASUREMENT SETUP*). The result of the calculation is presented in the same line, at the right side of the display.

6.6.3.5 Selection of the number of the results to be saved in the logger after the fulfilment of the triggering condition - POST

In the **POST** line, the number of the results registered in the logger's file after the fulfilment of the triggering condition can be set. This number is within the limits 0..200.

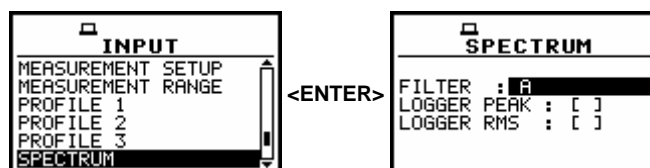


LOGGER TRIGGER windows with POST selection

Time period of the measurements which are saved in the logger after the fulfilment of the triggering condition can be calculated multiplying the value set in the **POST** by the value set in the **LOGGER STEP** (*path: INPUT / MEASUR. SETUP*). The result of the calculation is presented in the same line, at the right.

6.7 Selection of 1/1 octave spectrum parameters - SPECTRUM

The **SPECTRUM** appears in the **INPUT** window when the **DOSE&1/1 OCTAVE** or **SLM&1/1 OCTAVE** function is selected in the **MEASUREMENT FUNCTION** (*path: FUNCTION / MEASUREMENT FUNCTION / DOSE & 1/1 OCTAVE or SLM & 1/1 OCTAVE*). The **SPECTRUM** consists of the parameters, which influence the calculation and logging the results of **1/1 OCTAVE** analysis: **FILTER** and **LOGGER**.



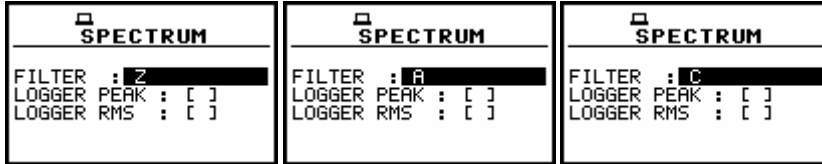
SPECTRUM selected in INPUT window and SPECTRUM window opened

6.7.1 Selecting the weighting filter in 1/1 OCTAVE analysis - FILTER

The **FILTER** influences the calculations of 1/1 OCTAVE analysis. The following weighting filters are available in the case of 1/1 OCTAVE analysis:

- **Z** type 1 according to the IEC 61672-1 standard,
- **A** type 1 according to the IEC 651 and IEC 61672-1 standards,
- **C** type 1 according to the IEC 651 and IEC 61672-1 standards.

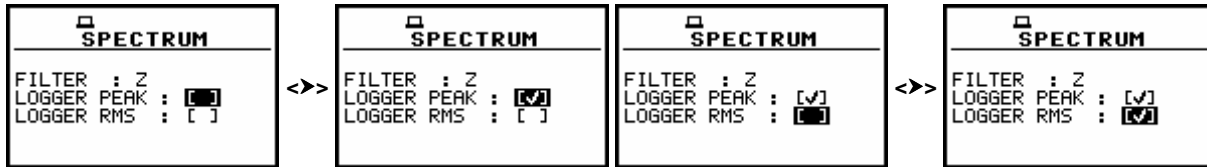
The frequency characteristics of those filters are given in Appendix D.



SPECTRUM windows with FILTER selection

6.7.2 Logging PEAK and RMS results from spectrum - LOGGER PEAK and LOGGER RMS

The **PEAK** and **RMS** result from 1/1 OCTAVE analysis can be saved in the logger's file of the instrument. The activation is made by placing a special character in the **LOGGER PEAK** or **LOGGER RMS** position. The activation is possible when the **LOGGER** functionality is switched on in the **MEASUREMENT SETUP** window (path: INPUT / MEASUREMENT SETUP / LOGGER). If the **LOGGER** functionality is switched off, the positions are not accessible.



SPECTRUM windows with LOGGER PEAK and LOGGER RMS selection