

SV 100

Whole-Body Vibration Dosimeter & Analyser



SVANTEK



QUICK START GUIDE

(version 1.2)

www.svantek.com



UNION FOR ENTERPRISING PEOPLE
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INTRODUCTION

It is recommended to read carefully whole guide before using SV 100 instrument.

The SV 100 is digital Whole-Body vibration dosimeter & analyser integrated with triaxial accelerometer located in the seat pad. Instrument meets ISO 8041:2005 standard and it is an ideal choice for the Whole-Body measurements according to the ISO 2631 -1, 2 & 5.

Instrument provides the following results: CDose, DDose, CExp, A(8), EAVTT, EAVTL, ELVTT, ELVTL, NDNTT, NDNTL, OVL, PEAK, P-P, MTVV or MAX, RMS, VDV, CRF and VEC (dependently on selected countries' standards). All of them are calculated with required weighting filters for Whole-Body measurements.

Instrument settings are made using SvanPC+. The settings are stored in setup files in internal instrument memory as well as in PC. Measurement data are downloaded to a PC by SvanPC+.

SVANTEK reserves the right to change the specifications of hardware and software described in this guide without prior notice.

SV 100 SET

The SV 100 set consists of the following parts:



SV 100 whole-body vibration dosimeter & analyser



SA 100 external battery unit (with 6 x AA alkaline batteries to be loaded) and fixing belts



Status indicator with magnet



SC 116 USB integrated connector



CD with SvanPC+ software (to be installed on PC)

To perform measurements with SV 100 follow given steps:

- Make settings in the instrument using SvanPC+ software or load available setup (see section SETTING THE SV 100)
- Connect SV 100 to the external battery unit and to status indicator and place the instrument on a place to be monitored (e.g. truck seat). The measurement will start automatically after sitting on the instrument (the adequate pressure force is required). In case of Simple Dosimeter mode the measurement result will be saved automatically (after disconnecting and connecting again the SV 100 to external battery unit see section MAKING a BASIC MEASUREMENT). In case of Advanced Dosimeter mode – the measurements result will be saved after the end of integration period.
- Download measurement results to a PC using SvanPC+ for data processing and visualisation (see section DOWNLOADING MEASUREMENT RESULTS INTO PC).

GETTING STARTED

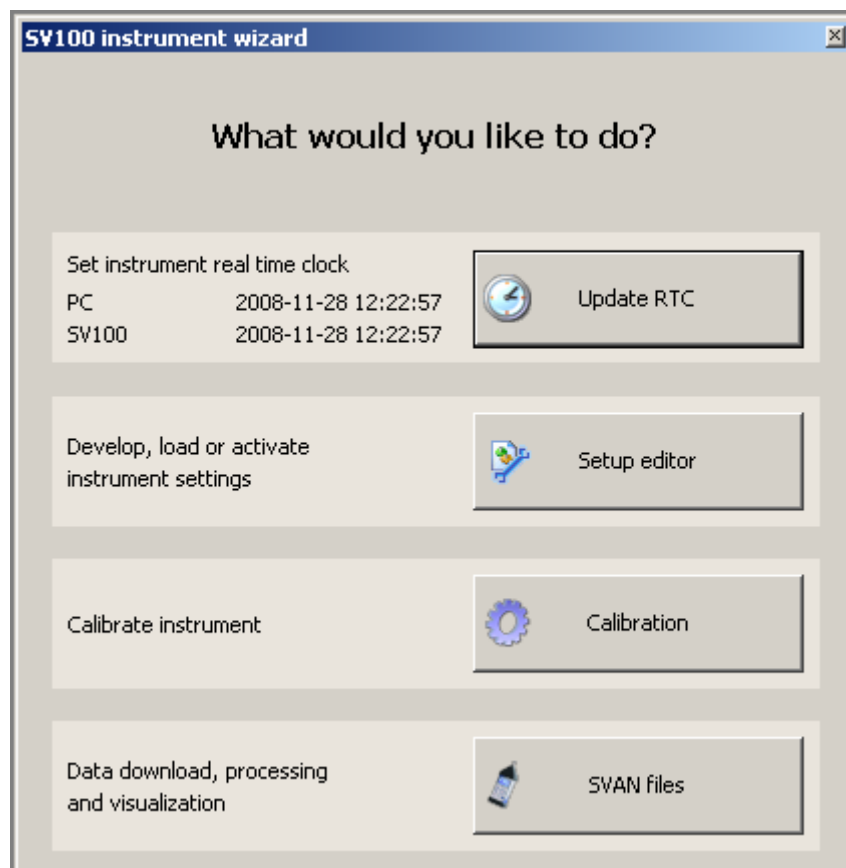
- Install USB drivers on your PC from the CD you received with your SV 100 set or download it from website: <http://svantek.com> (select SUPPORT / DRIVERS / SOFTWARE option from the menu, click on the download link and follow installation instructions). To complete USB driver installation user should connect SV 100 just after system reboot and select automatic USB driver installation. Last step has to be repeated for all USB ports. IMPORTANT: For installation of USB drivers you need to have administrator privileges.
- Install SvanPC+ software from provided CD or from website <http://svantek.com>



- Connect SV 100 to PC using SC 116 integrated connector.



- After launching the SvanPC+ you will see the following wizard screen:

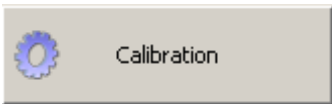




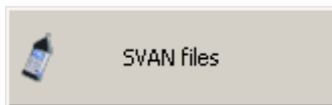
- click on this button in order to update the date and time in the SV 100; current date and time of your PC will be sent to the instrument.



- click on this button in order to develop, load or activate setup file(s)

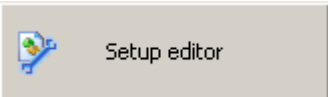
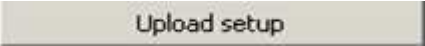
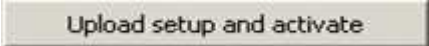


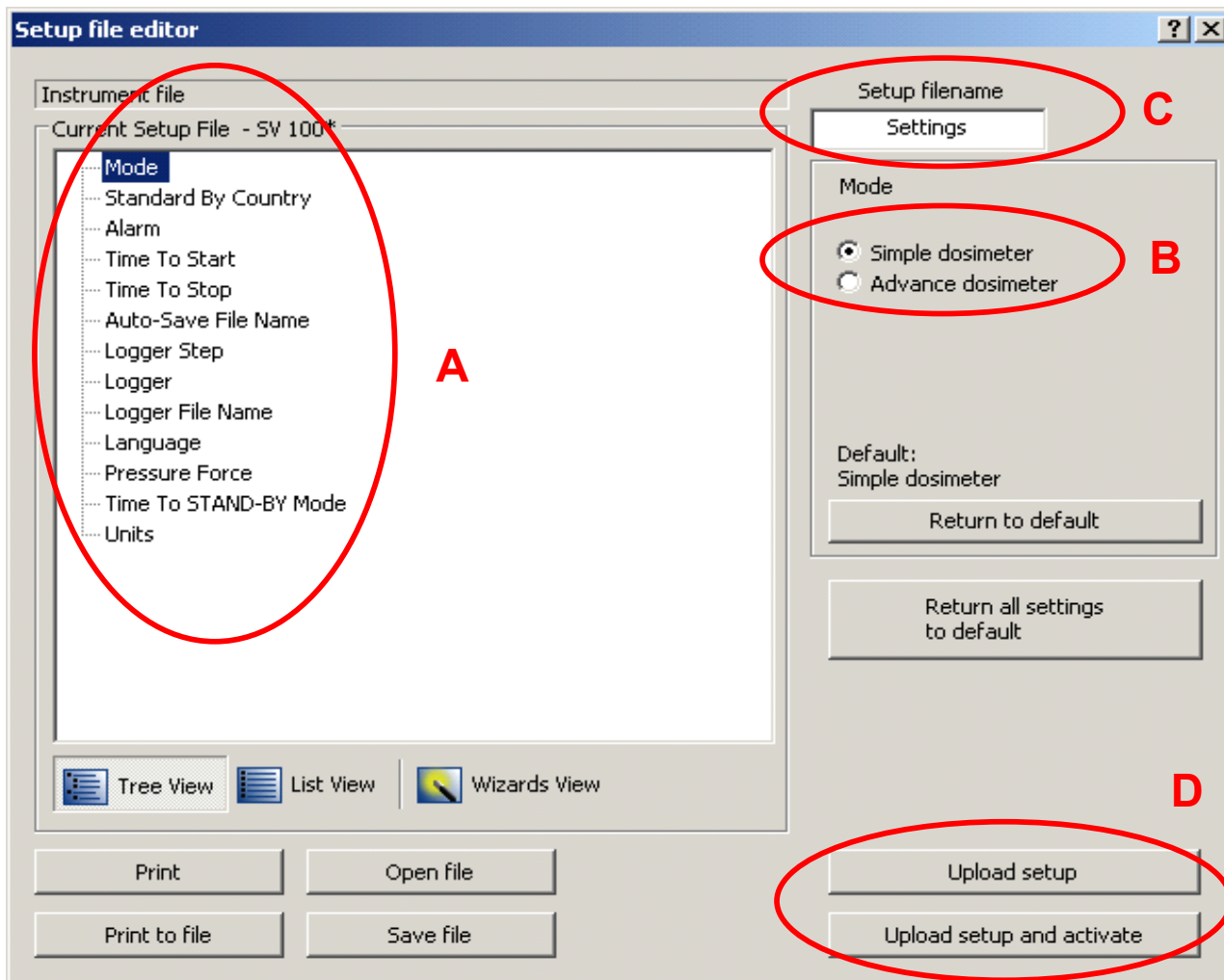
- click on this button in order to begin instrument calibration procedure; please be aware that vibration shaker is required (not included)



- click on this button in order to download and visualise obtained data

SETTING UP THE SV 100

- Press  button. Basic setup file named "**Settings**" will open automatically and you may modify it to make your own setup files.
- In order to set up the instrument:
 - Click on the parameter to be set **(A)**
 - Select the value of the parameter **(B)**
 - After entering all the settings, edit the name of the setup file **(C)**
 - Press  button to transfer the setup file to the instrument memory so it could be activated using instrument interface or press  to transfer this setup file to instrument memory and activate it as the current one **(D)**



Menu options in Simple Dosimeter mode differs significantly from options in Advanced Dosimeter mode.

Menu in Simple Dosimeter mode is as follows:

- **Mode** - mode of performed measurements
- **Standard By Country**- countries' standards for counting dose results

Simple Dosimeter

Fixed parameters and features	Parameters dependent from STANDARD selection
<ul style="list-style-type: none"> - vector coefficients x:1.4, y:1.4, z:1.0 - saving files automatically is switched on (auto save option) - exposure time is equal to integration 	<ul style="list-style-type: none"> -filters setting/ modification is possible when Standard by country is set to user. It is set defaultly to : x: Wd, y: Wd, z:Wk - it is possible to set alarm for all countries (in Poland it is always

<p>time</p> <p>- the results are not visible on the display</p>	<p>switched on)</p> <p>- EAVTT, EAVTL, ELVTT, ELVTL are available for all countries except Poland</p> <p>- NDNTT and NDNTL are available only for Poland</p> <p>- VDV, Cdose, Ddose is displayed for UK and for User</p> <p>UK: EAV=9.1m/s 1.75; ELV=1.15 m/s²</p> <p>Italy: EAV=0.5 m/s²; ELV=1.0 m/s²</p> <p>France: EAV=0.5 m/s²; ELV=1.15 m/s²</p> <p>Poland: NDN8=0.8m/s²</p> <p>User: default values like for UK</p>
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- **Alarm** – if the Alarm function is enabled the diode or other device connected to the ALARM socket in the external battery unit will switch on in the case when EAV, ELV or NDN (polish parameter) value(s) is (are) equal to zero.
- **Time To Start** - time to left before measurement cycle begins
- **Time To Stop** - time the vibrations are still measured after standing up from the vehicle
- **Auto-Save File Name** - name of the file with measurement data which are saved automatically
- **Logger Step** – time step of recording results in logger files
- **Logger** - selection of results to be saved in logger files
- **Logger File Name** - name of the logger file
- **Language** - the language of the SV 100 menu
- **Pressure Force** - pressure force value required to start measurement

- **Time To STANDBY Mode** - time after which instrument switches into a standby mode
- **Units** - units of measurement results

Menu in Advanced Dosimeter mode:

- **CALIBRATION**

- CHANNEL X (or Y, Z) Calibration Level – signal level for calibration purposes

- **MEASUREMENT**

- Measurement Mode

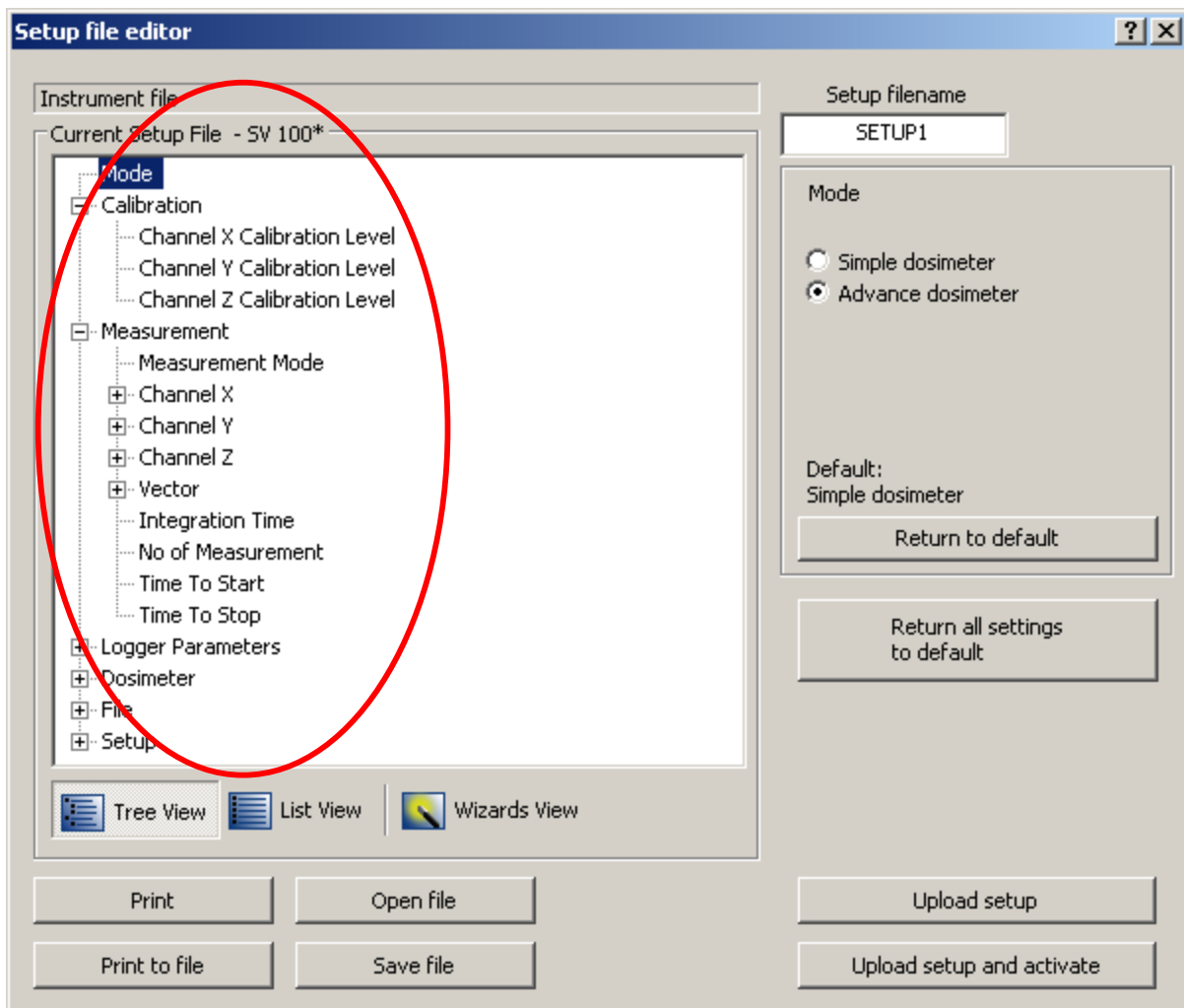
Mode

Measure	Calibration
<ul style="list-style-type: none"> ▪ force sensor checks the driver presence and control the measurement progress ▪ results are not visible during measurement (the display is switched off when measurement is in progress) ▪ when the operator is not present measurement is paused (PAUSED) 	<ul style="list-style-type: none"> ▪ presence detection sensor is disabled ▪ results are presented on SV 100 display during the measurement ▪ pause function is disabled

- CHANNEL X (or Y, Z)
 - Filter – weighting filter used for results calculation
 - Detector – detector time constant
- Vector
 - Channel X (or Y or Z) vector coefficient
 - Integration Time- integration period of measurement cycle
 - No of Measurement - number of measurement cycles
- Time to Start - time to left before measurement cycle begins
- Time to Stop- time the vibrations are still measured after standing up from the vehicle by the vehicle’s operator

▪ **LOGGER PARAMETERS**

- Logger – switching on/off the logger functionality
- Logger Step - period according which measurement results are recorded into logger file
- Channel X (or Y or Z) – selection of the results to be saved in logger files
- Logger File Name – name of the logger file
- Vector Logger – switching on/off of saving vector results in logger file



▪ **DOSIMETER**

- Standard - countries' standards for counting dose results
- Exposure Time - it is a time the employee is exposed for vibrations
- Alarm - if the Alarm function is enabled the diode or other device connected to the ALARM socket in the external battery unit will switch on in the case when EAV, ELV or NDN (polish parameter) value(s) is (are) equal to zero.


▪ **FILE**

- Auto Save - switching on/off automatic results saving option
- Replace File - replacing old file by the newest one
- RamFile - file which overwrites continuously files
- User Text - text that user can add which will be visible in SvanPC+
- Auto Save File Name - it enables to edit the name of the result file

▪ **SETUP**

- RMS integration - the RMS integration is always linear
- Reference Level of Acceleration - the reference level of acceleration is equal to $1\mu/s^2$
- Language - the language of the SV 100 menu
- Pressure Force (factory set to 1 N) - pressure force value required to start counting Pressure Time after which measurement process will be started
- Time to STAND-BY mode - time after which instrument switches into a standby mode
- Units - units of measurement results

After setting up the SV 100

- Make sure the proper setup file is upload and activated in the instrument
- Disconnect the instrument from PC
- Load batteries to SA 100 external battery unit
- Connect instrument to SA 100 - the instrument will automatically switch into standby mode after time set in SETUP/Standby delay position
- If the instrument is in standby mode - disconnect the SV 100 from SA 100 for a moment in order to switch into active mode or press  for 6s before the measurement

LOADING/EXCHANGING BATTERIES

The SA 100 external battery unit is delivered with 6xAA alkaline batteries to be loaded.

Always disconnect external battery unit from SV 100 before changing batteries.

In order to load/exchange the batteries:

- Take off black rubber bottom cover (side without connectors) of the SA 100 external battery unit
- Unscrew the four mounting screws and take off the covering plate

- Remove battery pack
- Remove empty batteries and load brand new alkaline or fully charged rechargeable batteries (follow polarity as marked on the battery pack)
- Reassemble the device



The SA 100 may be fixed to the driver's seat with use of the special belt.

STORING THE SV 100

It is recommended to store the instrument connected with SA 100 external battery unit in order to sustain Real Time Clock.

The SV 100 switches into standby mode after time set in SETUP/Standby delay position.

In other case (e.g. storing for long periods of time) please update Real Time

Clock settings



before a measurement.

CALIBRATION

The instrument is factory calibrated (the calibration factors for each channel are stored in the memory).

It is recommended to calibrate SV 100 before and after each measurement as well as to calibrate it periodically in an accredited laboratory.

MAKING A BASIC MEASUREMENT

Connect the instrument to the external battery unit (plug Lemo 4 into SV 100 socket).



Connect the status indicator to ALARM socket.



After powering on the SV 100 user should wait 60 seconds of warming up time indicated on instrument display and then start measurement.

The proper SETUP file should be already sent to the instrument with SvanPC+ software (see part "Measurement setup"). You may also select required SETUP

file by using LOAD SETUP option using user interface. Double press ◀+▶ to enter MENU and LOAD SETUP option. Select proper setup file using ▶ push-button. Press ◀+▶ simultaneously and press ◀ to confirm your selection.

Put the instrument on a place to be monitored (e.g. truck seat). The measurement will be started automatically by the pressure force after sitting on the device. The required pressure force is set in the SETUP/PRESSURE FORCE (factory setting is 1N) in the SvanPC+. In the case of standing up from the seat pad the measurement is paused. The status indicator is flashing when the measurement is in progress. It stops flashing during pause. In case when EAV or ELV value is overpassed the flashing time is longer. On the display occurs the cause of the ALARM.

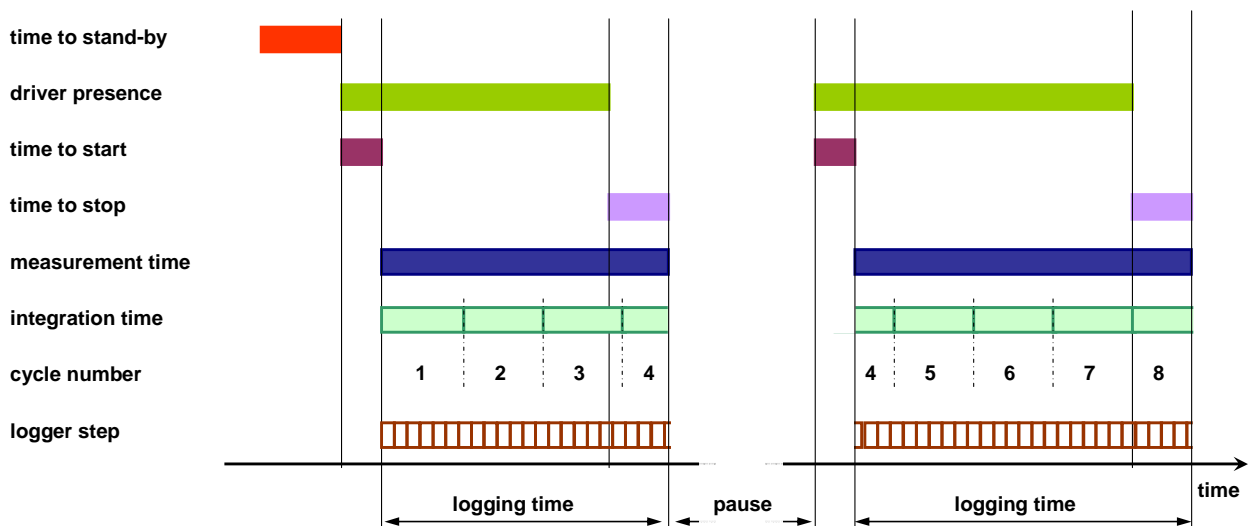
During the measurement you cannot change the settings.

The measurement results, enumerated in the introduction are not visible on the display.

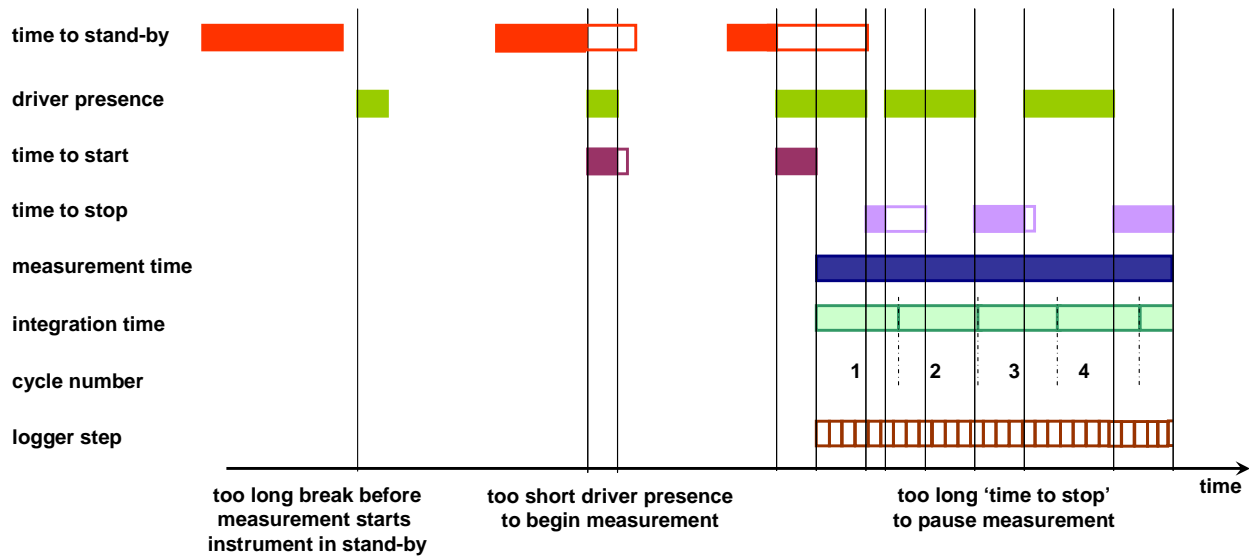
You can stop the measurement before end of measurement time only by disconnecting the SV 100 from external battery unit. It is important that on the display should be message "SWITCH POWER OFF TO STOP MEASURE. / PAUSE) otherwise the results will not be saved into file.

The time-schemes of measurement are presented below.

TYPICAL SITUATION



START & STOP TIMES INFLUENCE



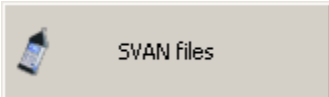


SAVING MEASUREMENT RESULTS

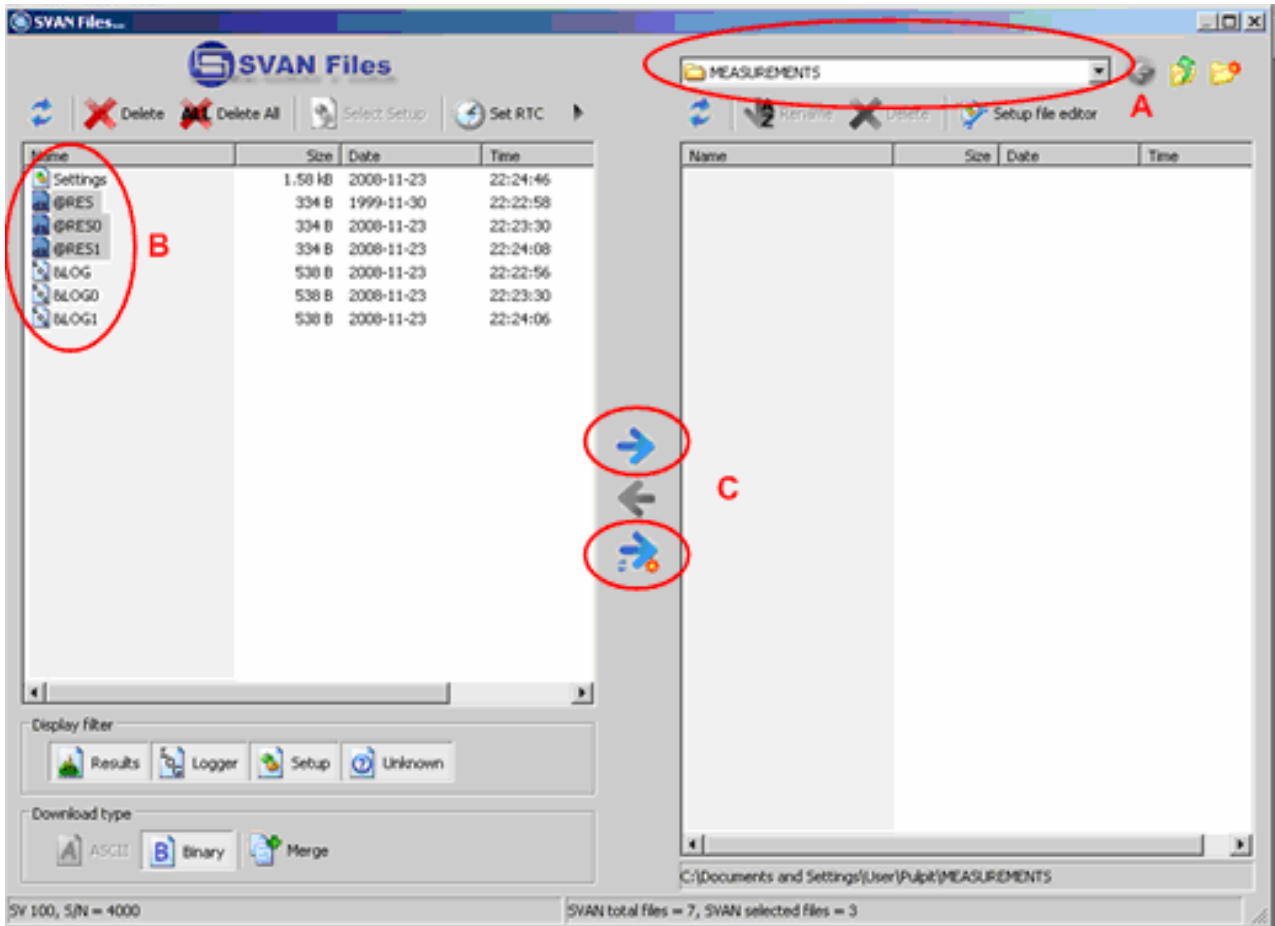
Two types of result files may be stored in the instrument memory - RESULT FILES and LOGGER FILES.

- Logger files are always saved automatically if results to be recorded are chosen in the menu (in case of simple dosimeter). In case of Advanced Dosimeter you have to additionally switch logger on
- Result files are saved automatically by AUTO SAVE option in simple dosimeter mode. In advance dosimeter mode AUTO SAVE parameters are fully user defined.



DOWNLOADING MEASUREMENT RESULTS INTO PC

In order to download measurement results

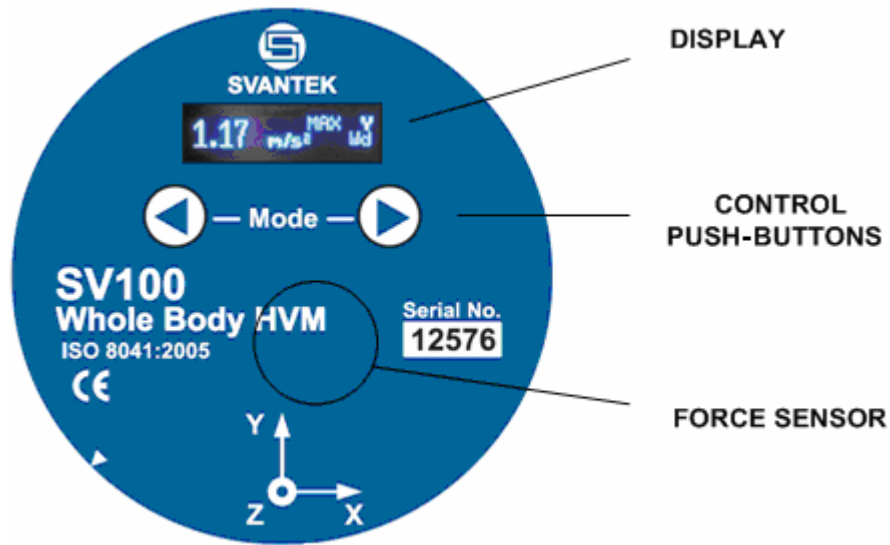
- Connect instrument to a PC
- Open SvanPC+ and press  button
- Select the catalogue to download files **(A)**
- Press  to download all files which are not present in PC directory **(C)** or
- Select results you need to download **(B)** , press  to download selected files **(C)**.



DELETING MEASUREMENT RESULTS

- Select the file(s) to be deleted and press  icon. You may use  icon to delete all files at once.

SV 100 FRONT PANEL AND USER INTERFACE CONTROL



It is recommended to set the instrument using SvanPC+ software, however control of the instrument by user interface is also possible and may be useful to calibrate the instrument without using SvanPC+.

◀+▶ left and right arrows: menu accessing and entering selected option



▶ right arrow: changing viewed results and selecting menu options



◀ left arrow: changing the channel / axis (X,Y,Z) for viewed result and selecting menu option

