B. DATA FILE STRUCTURES

B.1. General structure of the SV 100A file

Each file containing data from the **SV 100A** instrument consists of several groups of words. In the case of the **SV 100A** (the internal file system rev. **1.03**), there are different types of files containing:

- the results stored in the file (cf. App. B.2)
- the setup data (cf. App. B.3)

Each file has the following elements:

- the SvanPC file header (cf. Tab. B.1.1)
- the file header (cf. Tab. B.1.2)
- the unit and internal software specification (cf. Tab. B.1.3)
- the calibration settings (cf. Tab. B.1.23)
- the user's text (a header) stored together with the measurement data (cf. Tab. B.1.4)
- the Unit text info (cf. Tab. B.1.22);
- the parameters and global settings, common for all axes (cf. Tab. B.1.5)
- the time-domain signal recording parameters (cf. Tab. B.1.8)
- the wave-file recording parameters (cf. Tab. B.1.9)
- the special settings for axes (cf. Tab. B.1.10)
- the awv measurement settings (cf. Tab. B.1.11)
- the display settings of the main results (cf. Tab. B.1.12)
- the logger settings (cf. Tab. B.1.15)
- the data stored during the measurements in the file of the logger (cf. Tab. B.1.16)
- the main results saved in Summary Results Record (cf. Tab. B.1.17)

The other elements of the file structure are not obligatory for each file type stated above. They depend on the file type (**VLM**, **DOSE METER**, **1/1 OCTAVE**, **1/3 OCTAVE**). These elements are as follows:

- the settings of the instrument saved in the setup file (cf. Tab. B.1.13)
- the results coming from **1/1 OCTAVE** analysis saved in Summary Results Record (cf. Tab. B.1.18)
- the results coming from **1/3 OCTAVE** analysis saved in Summary Results Record (cf. Tab. B.1.19)

Below, all file structure groups are described separately in Tab. B.1.1 – Tab. B.1.20. The format used in the columns, named **Comment** with the square parenthesis ([xx, yy]), means the contents of the word with; **xx** is the most significant byte (MSB) and **yy** the lowest significant byte (LSB) of the word. The format 0xnnnn means that the nnnn is four-digit number in hexadecimal form.

In the logger and results files the result value equal to -12288 (0xd000) denotes the undefined value.

Table B.1.1. SvanPC file header

Word number	Name	Comment
0..2	"SvanPC"	reserved
3	26	reserved

4	32	reserved
5	3	reserved
6..15	Reserved	reserved
…	…	…

Table B.1.2. File header

Word number	Name	Comment
0	0xnn01	[01, nn=header's length]
1..4	FileName	name of the file (8 characters)
5	Reserved	reserved
6	CurrentDate	file creation date (cf. App. B.4)
7	CurrentTime	file creation time (cf. App. B.4)
8..13	Reserved	reserved
…	…	…

Table B.1.3. Unit and software specification

Word number	Name	Comment
0	0xnn02	[02, nn=specification's length]
1	UnitNumberL	unit number (LSB word)
2	UnitType	type of the unit: 100
3	SoftwareVersion	software version: 103
4	SoftwareIssueDate	software issue date
5	DeviceMode	mode of the instrument: 0 - **Vibration Level Meter** / **Analyser**
6	UnitSubtype	subtype of the unit: 2 - SV 100A
7	FileSysVersion	file system version:103
8	reserved	reserved
9	SoftwareSubversion	software subversion: 1
10	UnitNumberH	unit number (MSB word)
…	…	…

Table B.1.4. USER's text

Word number	Name	Comment
0	0xnn03	[03, nn=specification's length]
1…	title text	the user's text (two characters in a word) finished with one or two null bytes

Table B.1.5. Parameters and global settings

Word number	Name	Comment
0	0xnn04	[04, nn=block's length]
1	MeasureStartDate	measurement start date (cf. App. B.4)
2	MeasureStartTime	measurement start time (cf. App. B.4)
3	DeviceFunction	device function: 1 - **LEVEL METER** 2 - **1/1 OCTAVE** analyser 3 - **1/3 OCTAVE** analyser 4 - **DOSE METER**
4	MeasureInput	measurement input type: 5 - **Accelerometer**
5	Range	measurement range: 2 - **SINGLE**
6	UnitFlags	calibration flags: b0 - if set to 1: calibration coefficient is used in X axis b1 - if set to 1: calibration coefficient is used in Y axis b2 - if set to 1: calibration coefficient is used in Z axis
7	RepCycle	repetition cycle: 0 - infinity nnnn - number of repetitions $\in (1 \div 1000)$
8	NofAxes	number of axes (3)
9	NofProf	number of profiles (2)
10	TimeToStart	start-delay-time specified in seconds: 0..300
11..12	IntTimeSec	integration time specified in seconds
13		reserved
14	RmsInt	detector's type in the **aw** function: 0 - **LINEAR** 1 - **EXPONENT.**
15	SpectrumFilter	**1/1 OCTAVE** or **1/3 OCTAVE** analysis filter: 1 – HP1 in other cases: reserved
16	SpectrumBuff	**1/1 OCTAVE** or **1/3 OCTAVE** logger: 0 - **OFF**, 1 - **ON** in other cases: reserved
17	ExposureTime	exposure time: 0xffff - Exposure Time is equal to time of the measurement 1..480 (min)
18	RefLev_a	reference level for acceleration given in 0.01dB referenced to 1 μms^{-2}
19	Reserved	reserved
20	Reserved	reserved
21	Country	**Standard**: 0 - **User defined** 1 - **Directive 2002/44/EC** 2 - **German** 3 - **English** 4 - **Italian** 5 - **French** 6 - **Polish** 7 - **Brazilian**

22	MainResBuff	Summary results. Contents defined as a sum of: 0 - none 1 - **Main Results** 2 - **Spectrum** 4 - **Spectrum MAX** 8 - **Spectrum MIN**
23	AccComp	compensating filter for acceleration sensor: 0 - switched off, 1 - switched on
24	EAVlimit	Exposure Action Value calculation mode: 0 - aw option only 1 - VDV option only 2 - depending on the crest factor 3 - aren or VRVR depending on the crest factor (only for Brazilian standards)
25	EAV X (aw limit)	Exposure Action Value in **X axis** given in 0.01 m/s^2 (aw limit) or Exposure Action Value given in 0.01 m/s^2 (aren limit) for Brazilian standard
26	EAV Y (aw limit)	Exposure Action Value in Y **axis** given in 0.01 m/s^2 (aw limit)
27	EAV Z (aw limit)	Exposure Action Value in Z **axis** given in 0.01 m/s^2 (aw limit)
28	EAV X (VDV limit)	Exposure Action Value in **X axis** given in 0.01 $m/s^{1.75}$ (VDV limit) or Exposure Action Value given in 0.01 $m/s^{1.75}$ (VDVR limit) for Brazilian standard
29	EAV Y (VDV limit)	Exposure Action Value in Y **axis** given in 0.01 $m/s^{1.75}$ (VDV limit)
30	EAV Z (VDV limit)	Exposure Action Value in Z **axis** given in 0.01 $m/s^{1.75}$ (VDV limit)
31	ELVlimit	Exposure Limit Value calculation mode: 0 - aw option only 1 - VDV option only 2 - depending on the crest factor 3 - aren or VRVR depending on the crest factor (only for Brazilian standards)
32	ELV X (aw limit)	Exposure Limit Value in **X axis** given in 0.01 m/s^2 (aw limit) or Exposure Limit Value given in 0.01 m/s^2 (aren limit) for Brazilian standard
33	ELV Y (aw limit)	Exposure Limit Value in Y **axis** given in 0.01 m/s^2 (aw limit)
34	ELV Z (aw limit)	Exposure Limit Value in Z **axis** given in 0.01 m/s^2 (aw limit)
35	ELV X (VDV limit)	Exposure Limit Value in **X axis** given in 0.01 $m/s^{1.75}$ (VDV limit) or Exposure Limit Value given in 0.01 $m/s^{1.75}$ (VDVR limit) for Brazilian standard
36	ELV Y (VDV limit)	Exposure Limit Value in Y **axis** given in 0.01 $m/s^{1.75}$ (VDV limit)
37	ELV Z (VDV limit)	Exposure Limit Value in Z **axis** given in 0.01 $m/s^{1.75}$ (VDV limit)
38	AlarmMask	activated alarm defined as a sum of: 0 - none 1 - **EAV** 2 - **ELV**
39	SpectrumFilterTotal[1]	**1/1 OCTAVE** or **1/3 OCTAVE** analysis filter for Total 1: 124 - band Limit of **Wf** in other cases: reserved
40	SpectrumFilterTotal[2]	**1/1 OCTAVE** or **1/3 OCTAVE** analysis filter for Total 2: 117 - band Limit of **Wd** in other cases: reserved
41	SpectrumFilterTotal[3]	**1/1 OCTAVE** or **1/3 OCTAVE** analysis filter for Total 3: 120 - band Limit of **Wm**

		in other cases: reserved
42	Pause[1]	Programmable pause no. 1.
43	PauseBegin[1]	The start time of the pause no. 1 in format 0xhhmm hh – hour mm – minute
44	PauseEnd[1]	The end time of the pause no. 1 in format 0xhhmm: hh – hour mm – minute
45	Pause[2]	Programmable pause no. 2.
46	PauseBegin[2]	The start time of the pause no. 2 in format 0xhhmm hh – hour mm – minute
47	PauseEnd[2]	The end time of the pause no. 2 in format 0xhhmm: hh – hour mm – minute
48	Pause[3]	Programmable pause no. 3.
49	PauseBegin[3]	The start time of the pause no. 3 in format 0xhhmm hh – hour mm – minute
50	PauseEnd[3]	The end time of the pause no. 3 in format 0xhhmm: hh – hour mm – minute
51	Pause[4]	Programmable pause no. 4.
52	PauseBegin[4]	The start time of the pause no. 4 in format 0xhhmm hh – hour mm – minute
53	PauseEnd[4]	The end time of the pause no. 4 in format 0xhhmm: hh – hour mm – minute
54	Pause[5]	Programmable pause no. 5.
55	PauseBegin[5]	The start time of the pause no. 5 in format 0xhhmm hh – hour mm – minute
56	PauseEnd[5]	The end time of the pause no. 5 in format 0xhhmm: hh – hour mm – minute
57	PressForceMode	Force Detector Mode: 0 – marker 1 – pause
59	MultiplyingFactor[0]	Multiplying Factor value from the **X** axis (*100)
60	MultiplyingFactor[1]	Multiplying Factor value from the **Y** axis (*100)
61	MultiplyingFactor[2]	Multiplying Factor value from the **Z** axis (*100)
62	AxesOrientation	Axes Orientation mode: 0 - Seat-surface 1 - Seat-back 2 - Autodetection
63	Orientation	Axes Orientation for measurement: 0 - axes orientation consistent with the marking on the device 1 - axis assignment: X: Z marked on the device Y: Y marked on the device Z: X marked on the device 2 – axis assignment: X: Z marked on the device Y: X marked on the device Z: Y marked on the device

…	…	…

Table B.1.8. Time-domain signal recording parameters

Word number	Name	Comment
0	0xnn31	[31, nn=block's length]
1	Mode	mode: 0 - **OFF** 1 - recording whole measurement 2 - recording on trigger **SLOPE+** 3 - recording on trigger **SLOPE–** 4 - recording on trigger **LEVEL+** 5 - recording on trigger **LEVEL–**
2	TriggerSource	source of the triggering signal defined as a sum of: 1 - the **aw** in axis **X** 2 - the **aw** in axis **Y** 4 - the **aw** in axis **Z**
3	TriggerLevel	level of triggering: 80 ÷ 160 dB (*10)
4	TriggerGrad	Reserved
5	TriggerPre	recording before triggering 0 - **OFF**, 1 - **ON**
6	TriggerPost	reserved
7	Sampling	sampling frequency in 1Hz
8	RecTime	recording time of single data block: 0 - recording to the end of measurement 1..28800 (sec)
9	BitsPerSample	bits/sample (16)
10	Axes	signal recorded form axes defined as a sum of: 1 - axis **X** 2 - axis **Y** 4 - axis **Z**
11	Range (X)	range value of the **X** axis in 0.01dB
12	Range (Y)	range value of the **Y** axis in 0.01dB
13	Range (Z)	range value of the **Z** axis in 0.01dB
14	RefLev	**reference level given in 0.01dB referenced to 1 µms^{-2}**
15	Step	trigger period given in 0.1 ms. If zero Step is equal to logger time-step (cf. Tab. B.1.15)
16	Filter	frequency weighting filter: 0 –unweighted, 1 - band limit filter (cf. App. B.1.10)
…	…	….

Table B.1.9. Wave-file recording parameters

Word number	Name	Comment
0	0xnn2D	[2D, nn=block's length]
1	Mode	mode: 0 - **OFF**

		1 - recording whole measurement 2 - recording on trigger **SLOPE+** 3 - recording on trigger **SLOPE–** 4 - recording on trigger **LEVEL+** 5 - recording on trigger **LEVEL–**
2	TriggerSource	source of the triggering signal defined as a sum of: 1 - the **aw** in axis **X** 2 - the **aw** in axis **Y** 4 - the **aw** in axis **Z**
3	TriggerLevel	level of triggering: 80 ÷ 160 dB (*10)
4	TriggerGrad	reserved
5	TriggerPre	recording before triggering 0 - **OFF**, 1 - **ON**
6	TriggerPost	reserved
7	Sampling	sampling frequency in 1Hz (6000 Hz)
8	RecTime	recording time of single data block: 0 - recording to the end of measurement 1..28800 (sec)
9	BitsPerSample	bits/sample (16)
10	Axes	signal recorded form axes defined as a sum of: 1 - axis **X** 2 - axis **Y** 4 - axis **Z**
11	Range (X)	range value of the **X** axis in 0.01dB
12	Range (Y)	range value of the **Y** axis in 0.01dB
13	Range (Z)	range value of the **Z** axis in 0.01dB
14	RefLev	**reference level given in 0.01dB referenced to 1 µms^{-2}**
15	Step	trigger period given in 0.1 ms. If zero Step is equal to logger time-step (cf. Tab. B.1.15)
16	Filter	frequency weighting filter: 0 –unweighted, 1 - band limit filter (cf. App. B.1.10)
…	…	….

Table B.1.10. Special settings for axes

Word number	Name	Comment
0	0xnn05	[05, nn=block's length]
1	0x0607	[used_profile, profile's mask]
2	0xmm06	[06, mm=sub-block's length]
3	DetectorP[1][1]	detector type in the 1st profile, **X** axis: 0 - **100ms** 1 - **125ms** 2 - **200ms** 3 - **500ms** 4 - **1s** 5 - **2s** 6 - **5s** 7 - **10s**
4	FilterP[1] [1]	filter type in the 1st profile, **X** axis:

		17 - **Wd** 20 - **Wm** 24 - **Wf**
5	LoggerP[1] [1]	logger contents in the 1st profile, **X** axis defined as a sum of: 0 - none 1 - **PEAK** 2 - **P–P** 4 - **MAX** 8 – **aw** 16 - **VDV**
6	CalibrFactor[1] [1]	reserved
7	ProfileFlags[1] [1]	reserved
8	0xmm06	[06, mm=sub-block's length]
9	DetectorP[1] [2]	detector type in the 1st profile, **Y** axis: 0 - **100ms** 1 - **125ms** 2 - **200ms** 3 - **500ms** 4 - **1s** 5 - **2s** 6 - **5s** 7 - **10s**
10	FilterP[1] [2]	filter type in the 1st profile, **Y** axis: 17 - **Wd** 20 - **Wm** 24 - **Wf**
11	LoggerP[1] [2]	logger contents in the 1st profile, **Y** axis: defined as a sum of: 0 - none 1 - **PEAK** 2 - **P–P** 4 - **MAX** 8 - **aw** 16 - **VDV**
12	CalibrFactor[1] [2]	reserved
13	ProfileFlags[1] [2]	reserved
14	0xmm06	[06, mm=sub-block's length]
15	DetectorP[1] [3]	detector type in the 1st profile, **Z** axis: 0 - **100ms** 1 - **125ms** 2 - **200ms** 3 - **500ms** 4 - **1s** 5 - **2s** 6 - **5s** 7 - **10s**
16	FilterP[1] [3]	filter type in the 1st profile, **Z** axis: 16 - **Wk** 20 - **Wm** 23 - **Wb** 24 - **Wf**
17	LoggerP[1] [3]	logger contents in the 1st profile, **Z** axis defined as a sum of: 0 - none 1 - **PEAK**

		2 - **P–P** 4 - **MAX** 8 - **aw** 16 - **VDV**
18	CalibrFactor[1] [3]	reserved
19	ProfileFlags[1] [3]	reserved
20	0xmm06	[06, mm=sub-block's length]
21	DetectorP[2] [1]	detector type in the 2nd profile, **X** axis: 0 - **100ms** 1 - **125ms** 2 - **200ms** 3 - **500ms** 4 - **1s** 5 - **2s** 6 - **5s** 7 - **10s**
22	FilterP[2][1]	filter type in the 2nd profile, **X** axis: 117 - band Limit of **Wd** 120 - band Limit of **Wm** 124 - band Limit of **Wf**
23	LoggerP[2] [1]	logger contents in the 2nd profile, **X** axis defined as a sum of: 0 - none
24	CalibrFactor[2] [1]	reserved
25	ProfileFlags[2] [1]	reserved
26	0xmm06	[06, mm=sub-block's length]
27	DetectorP[2] [2]	detector type in the 2nd profile, **Y** axis: 0 - **100ms** 1 - **125ms** 2 - **200ms** 3 - **500ms** 4 - **1s** 5 - **2s** 6 - **5s** 7 - **10s**
28	FilterP[2] [2]	filter type in the 2nd profile, **Y** axis: 117 - band Limit of **Wd** 120 - band Limit of **Wm** 124 - band Limit of **Wf**
29	LoggerP[2] [2]	logger contents in the 2nd profile, **Y** axis: defined as a sum of: 0 - none
30	CalibrFactor[2] [2]	reserved
31	ProfileFlags[2] [2]	reserved
32	0xmm06	[06, mm=sub-block's length]
33	DetectorP[2] [3]	detector type in the 2nd profile, **Z** axis: 0 - **100ms** 1 - **125ms** 2 - **200ms** 3 - **500ms** 4 - **1s** 5 - **2s** 6 - **5s**

		7 - **10s**
34	FilterP[2] [3]	filter type in the 2nd profile, **Z** axis: 116 - band Limit of **Wk** 120 - band Limit of **Wm** 123 - band Limit of **Wb** 124 - band Limit of **Wf**
35	LoggerP[2] [3]	logger contents in the 2nd profile, **Z** axis defined as a sum of: 0 - none
36	CalibrFactor[2] [3]	reserved
37	ProfileFlags[2] [3]	reserved
…	…	…

Table B.1.11. awv (vector) measurement settings

Word number	Name	Comment
0	0xnn40	[05, nn=block's length]
1	VectorLoggerP	awv result logging: 0 - **OFF**, 1 - **ON**
2	VectorCoeff[1]	awv coefficient for the **aw** value from the **X** axis (*100)
4	VectorCoeff[2]	awv coefficient for the **aw** value from the **Y** axis (*100)
5	VectorCoeff[3]	awv coefficient for the **aw** value from the **Z** axis (*100)
6	VectorOn[1]	**aw** value from the **X** axis used for calculation: 0 - no, 1 - yes
7	VectorOn[2]	**aw** value from the **Y** axis used for calculation: 0 - no, 1 - yes
8	VectorOn[3]	**aw** value from the **Z** axis used for calculation: 0 - no, 1 - yes
9	VectorResult	reserved
…	…	…

Table B.1.12. Display settings of the main results

Word number	Name	Comment
0	0xnn48	[48, nn=header's length]
1	0x0607	[used_profile, profile's mask]
2	0xnn01	[profile number, mm=sub-block's length]
3	TIME[1]	0 – TIME result not displayed, 1 - TIME result displayed
4	PEAK[1]	0 – PEAK result not displayed, 1 - PEAK result displayed
5	P-P[1]	0 – P-P result not displayed, 1 – P-P result displayed
6	MAX[1]	0 – MAX result not displayed, 1 – MAX result displayed
7	aw[1]	0 – aw result not displayed, 1 - aw result displayed
8	CRF[1]	0 – CRF result not displayed, 1 – CRF result displayed
9	MSDV[1]	0 – MSDV result not displayed, 1 – MSDV result displayed
10	awv[1]	0 – awv result not displayed, 1 - awv result displayed
11	CExp[1]	0 – CExp result not displayed, 1 - CExp result displayed
12	A8[1]	0 – A8 result not displayed, 1 – A8 result displayed
13	EAVTT[1]	0 – EAVTT result not displayed, 1 - EAVTT result displayed
14	EAVTL[1]	0 – EAVTL result not displayed, 1 - EAVTL result displayed

15	ELVTT[1]	0 – ELVTT result not displayed, 1 – ELVTT result displayed
16	ELVTL[1]	0 – ELVTL result not displayed, 1 - ELVTL result displayed
17	VDV[1]	0 – VDV result not displayed, 1 - VDV result displayed
18	OVL[1]	0 – OVL result not displayed, 1 - OVL result displayed
19	CDose [1]	0 – CDose result not displayed, 1 – CDose result displayed
20	DDose [1]	0 – DDose result not displayed, 1 – DDose result displayed
21	aren [1]	0 – aren result not displayed, 1 – aren result displayed
22	VDVR [1]	0 – VDVR result not displayed, 1 – VDVR result displayed
23	0xnn02	[profile number, mm=sub-block's length]
24	TIME[2]	reserved
24	PEAK[2]	0 – PEAK result not displayed, 1 - PEAK result displayed
26	P-P[2]	reserved
26	MAX[2]	reserved
28	aw[2]	0 – aw result not displayed, 1 - aw result displayed
29	CRF[2]	reserved
30	MSDV[2]	reserved
31	awv[2]	reserved
32	CExp[2]	reserved
33	A8[2]	reserved
34	EAVTT[2]	reserved
35	EAVTL[2]	reserved
36	ELVTT[2]	reserved
37	ELVTL[2]	reserved
38	VDV[2]	reserved
39	OVL[2]	reserved
40	CDose[2]	reserved
41	DDose [2]	reserved
42	aren [2]	reserved
43	VDVR [2]	reserved

Table B.1.13. SETUP DATA

Word number	Name	Comment
0	0x0041	[41, 00]
1	BlockLength	length of the block
2..BlockLength-1	SetupTextData	saved setup values

Table B.1.15. Logger settings

Word number	Name	Comment
0	0xnn0F	[0F, nn=header's length]
1	BuffTSec	logger time-step - full seconds part

2	BuffTMilisec	logger time-step - milliseconds part
3	LowestFreq	the lowest **1/1 OCTAVE** or **1/3 OCTAVE** frequency (*100 Hz)
4	NOctTer	number of **1/1 OCTAVE** or **1/3 OCTAVE** results per axis
5	NOctTerTot	number of **TOTAL** values per axis
6..7	BuffLength	logger length (bytes)
8..9	RecsInBuff	number of records in the logger
10..11	RecsInObserv	number of records in the observation period equal to: number of records in the logger + number of records not saved
12..13	TDRecs	number of time-domain signal records in the logger
…	…	…

Note: *The current logger time-step in seconds can be obtained from the formulae:*
T = BuffTSec + BuffTMillisec / 1000

Table B.1.16. Contents of the file from the logger

Word number	Name	Comment
0..(BuffLength/2-1)		result#1, result#2, ... result#(BuffLength/2-1)

Table B.1.17 Main results (saved in Summary Results Record)

Word number	Name	Comment
0	0xnn07	[07, nn=block's length]
1	0x0607	[used_profile, profile's mask]
2	0xmm08	[08, mm=sub-block's length]
3..4	MeasureTime	time of the measurement
5..6	OVL[1]	overload time in the **X** axis
7	Result[1][1]	**PEAK** value in the **X** axis (*100 dB)
8	Result[1][2]	**P–P** value in the **X** axis (*100 dB)
9	Result[1][3]	maximal value (**MAX**) in the **X** axis (*100 dB)
10	Result[1][4]	**aw** value in the **X** axis (*100 dB)
11	Result[1][5]	**VDV** value in the **X** axis (*100 dB)
12	Result[1][6]	**awv** value (*100 dB)
13	Result[1][7]	reserved
14	UnderRes[1]	under-range value in the **X** axis
15	UnitFlags	measurement flags: b0 - if set to 1: calibration coefficient is used in X axis b1 - if set to 1: calibration coefficient is used in Y axis b2 - if set to 1: calibration coefficient is used in Z axis b3 - if set to 1: overload occurred in X axis b4 - if set to 1: overload occurred in Y axis

		b5 - if set to 1: overload occurred in Z axis
16	0xmm08	[08, mm=sub-block's length]
17..18	Reserved	reserved
19..20	OVL[2]	overload time in the **Y** axis
21	Result[2][1]	**PEAK** value in the **Y** axis (*100 dB)
22	Result[2][2]	**P–P** value in the **Y** axis (*100 dB)
23	Result[2][3]	maximal value (**MAX**) in the **Y** axis (*100 dB)
24	Result[2][4]	**aw** value in the **Y** axis (*100 dB)
25	Result[2][5]	**VDV** value in the **Y** axis (*100 dB)
26	Result[2][6]	reserved
27	Result[2][7]	reserved
28	UnderRes[2]	under-range value in the **Y** axis
29	UnitFlags	flags word for measurement cycle (definition in table B.1.17 nr 15)
30	0xmm08	[08, mm=sub-block's length]
31..32	Reserved	reserved
33..34	OVL[3]	overload time in the **Z** axis
35	Result[3][1]	**PEAK** value in the **Z** axis (*100 dB)
36	Result[3][2]	**P–P** value in the **Z** axis (*100 dB)
37	Result[3][3]	maximal value (**MAX**) in the **Z** axis (*100 dB)
38	Result[3][4]	**aw** value in the **Z** axis (*100 dB)
39	Result[3][5]	**VDV** value in the **Z** axis (*100 dB)
40	Result[3][6]	reserved
41	Result[3][7]	reserved
42	UnderRes[3]	under-range value in the **Z** axis
43	UnitFlags	flags word for measurement cycle (definition in table B.1.17 nr 15)
44	0xmm08	[08, mm=sub-block's length]
45..46	MeasureTime	reserved
47..48	OVL[4]	reserved
49	Result[4][1]	**PEAK** value in the **X** axis (calculated with band limiting filter) (*100 dB)
50	Result[4][2]	reserved
51	Result[4][3]	reserved
52	Result[4][4]	**aw** value in the **Z** axis (calculated with band limiting filter) (*100 dB)
53	Result[4][5]	reserved
54	Result[4][6]	reserved
55	Result[4][7]	reserved
56	UnderRes[4]	under-range value in the **X** axis (calculated with band limiting filter)
57	UnitFlags	flags word for measurement cycle (definition in table B.1.17 nr 15)
58	0xmm08	[08, mm=sub-block's length]
59..60	Reserved	reserved
61..62	OVL[5]	reserved
63	Result[5][1]	**PEAK** value in the **Y** axis (calculated with band limiting filter) (*100 dB)
64	Result[5][2]	reserved
65	Result[5][3]	reserved
66	Result[5][4]	**aw** value in the **Y** axis (calculated with band limiting filter) (*100 dB)
67	Result[5][5]	reserved

68	Result[5][6]	reserved
69	Result[5][7]	reserved
70	UnderRes[5]	under-range value in the **Y** axis (calculated with band limiting filter)
71	UnitFlags	flags word for measurement cycle (definition in table B.1.17 nr 15)
72	0xmm08	[08, mm=sub-block's length]
73..74	Reserved	reserved
75..76	OVL[6]	reserved
77	Result[6][1]	**PEAK** value in the **Z** axis (calculated with band limiting filter) (*100 dB)
78	Result[6][2]	reserved
79	Result[6][3]	reserved
80	Result[6][4]	**aw** value in the **Z** axis (calculated with band limiting filter) (*100 dB)
81	Result[6][5]	reserved
82	Result[6][6]	reserved
83	Result[6][7]	reserved
84	UnderRes[6]	under-range value in the **Z** axis (calculated with band limiting filter)
85	UnitFlags	flags word for measurement cycle (definition in table B.1.17 nr 15)
…	…	…

Table B.1.18. 1/1 OCTAVE analysis results (saved in Summary Results Record)

Word number	Name	Comment
0	0xnn0E, 0xnn26, 0xnn27	[block_id, nn=block_length] 0xnn**0E** - averaged spectrum results, 0xnn**26** - min. spectrum results, 0xnn**27** - max. spectrum results
1	0x0303	[used_axis, axis's mask]
2	LowestFreq	the lowest **1/1 OCTAVE** frequency (*100 Hz)
3	NOct	number of **1/1 OCTAVE** values
4	NOctTot	number of **TOTAL** values
	Octave[0][i]	1/1 octave[i] value (*100 dB); i=1..NOct+NoctTot (1..10) in X axis
	Octave[1][i]	1/1 octave[i] value (*100 dB); i=1..NOct+NoctTot (1..10) in Y axis
	Octave[2][i]	1/1 octave[i] value (*100 dB); i=1..NOct+NoctTot (1..10) in Z axis
…	…	…

Table B.1.19. 1/3 OCTAVE analysis results (saved in Summary Results Record)

Word number	Name	Comment
0	0xnn10, 0xnn28, 0xnn29	[block_id, nn=block_length] 0xnn**10** - averaged spectrum results, 0xnn**28** - min. spectrum results, 0xnn**29** - max. spectrum results
1	0x0303	[used_axis, axis's mask]
2	LowestFreq	the lowest **1/3 OCTAVE** frequency (*100 Hz)

3	NTer	number of **1/3 OCTAVE** values
4	NTerTot	number of **TOTAL** values
	Tercje[0][i]	1/3 octave[i] value (*100 dB); i=1..NTer+NTerTot (1..10) in X axis
	Tercje[1][i]	1/3 octave[i] value (*100 dB); i=1..NTer+NTerTot (1..10) in Y axis
	Tercje[2][i]	1/3 octave[i] value (*100 dB); i=1..NTer+NTerTot (1..10) in Z axis
…	…	…

Table B.1.20. File-end-marker

Word number	Name	Comment
0	0xFFFF	file end marker

Table B.1.22. Unit text info

Word number	Name	Comment
0	0xnn58	[58, nn=block's length]
1	"UN"	Unit name header
2..8	UnitName	Unit name
9	"SE"	Setup name header
10..14	SetupName	Setup name
.....	.....	.....

Table B.1.23. Calibration settings

Word number	Name	Comment
0	0xnn47	[47, nn=header's length]
1	0x0307	[used_channel, channel's mask]
2	0xmm06	[06, mm=sub-block's length]
3	Channel[1]	channel : 0 - **X**, 1 - **Y**, 2 - **Z**,
4	PreCalibrType[1]	type of calibration performed prior to measurement: 0 - none 1 - by measurement 2 - by sensitivity 3 - factory calibration
5	PreCalibrDate[1]	date of calibration performed prior to measurement (cf. App. B.4)
6	PreCalibrTime[1]	time of calibration performed prior to measurement (cf. App. B.4)

		Value of -1 (0xffff) means an unknown calibration time.
7	PreCalibrFactor[1]	factor (*100 dB) of calibration performed prior to measurement
8	PostCalibrType[1]	type of calibration performed after the measurement: 0 - none 1 - by measurement 2 - by sensitivity 3 - factory calibration 0xFFFF - **Calibration not performed**
9	PostCalibrDate[1]	date of calibration performed after the measurement (cf. App. B.4)
10	PostCalibrTime[1]	time of calibration performed after the measurement (cf. App. B.4) Value of -1 (0xffff) means an unknown calibration time.
11	PostCalibrFactor[1]	factor (*100 dB) of calibration performed after the measurement
12	0xmm06	[06, mm=sub-block's length]
13	Channel[2]	channel: 0 - **X**, 1 - **Y**, 2 - **Z**,
14	PreCalibrType[2]	type of calibration performed prior to measurement: 0 - none 1 - by measurement 2 - by sensitivity 3 - factory calibration
15	PreCalibrDate[2]	date of calibration performed prior to measurement (cf. App. B.4)
16	PreCalibrTime[2]	time of calibration performed prior to measurement (cf. App. B.4) Value of -1 (0xffff) means an unknown calibration time.
17	PreCalibrFactor[2]	factor (*100 dB) of calibration performed prior to measurement
18	PostCalibrType[2]	type of calibration performed after the measurement: 0 - none 1 - by measurement 2 - by sensitivity 3 - factory calibration 0xFFFF - **Calibration not performed**
19	PostCalibrDate[2]	date of calibration performed after the measurement (cf. App. B.4)
20	PostCalibrTime[2]	time of calibration performed after the measurement (cf. App. B.4) Value of -1 (0xffff) means an unknown calibration time.
21	PostCalibrFactor[2]	factor (*100 dB) of calibration performed after the measurement
22	0xmm06	[06, mm=sub-block's length]
23	Channel[3]	channel : 0 - **X**, 1 - **Y**, 2 - **Z**,
24	PreCalibrType[3]	type of calibration performed prior to measurement: 0 - none 1 - by measurement 2 - by sensitivity

		3 - factory calibration
25	PreCalibrDate[3]	date of calibration performed prior to measurement (cf. App. B.4)
26	PreCalibrTime[3]	time of calibration performed prior to measurement (cf. App. B.4) Value of -1 (0xffff) means an unknown calibration time.
27	PreCalibrFactor[3]	factor (*100 dB) of calibration performed prior to measurement
28	PostCalibrType[3]	type of calibration performed after the measurement: 0 - none 1 - by measurement 2 - by sensitivity 3 - factory calibration 0xFFFF - **Calibration not performed**
29	PostCalibrDate[3]	date of calibration performed after the measurement (cf. App. B.4)
30	PostCalibrTime[3]	time of calibration performed after the measurement (cf. App. B.4) Value of -1 (0xffff) means an unknown calibration time.
31	PostCalibrFactor[3]	factor (*100 dB) of calibration performed after the measurement
…	…	…

B.2. Structure of the file containing results

SvanPC file header - cf. Tab. B.1.1.
File header - cf. Tab. B.1.13
Unit and software specification - cf. Tab. B.1.3.
Calibration settings cf. Tab. B.1.23.
USER'S text - cf. Tab. B.1.4.
Unit text info - cf. Tab. B.1.22.
Parameters and global settings - cf. Tab. B.1.5.
Time-domain signal recording parameters - cf. Tab. B.1.8.
Wave-file recording parameters - cf. Tab. B.1.9.
Special settings for axes - cf. Tab. B.1.10.
The awv measurement settings - cf. Tab. B.1.11.
Display settings of the main results - cf. Tab. B.1.12.
Logger settings - cf. Tab. B.1.15.
Contents of the file from the logger - cf. Tab. B.1.16. and the description in B.2.1.

B.2.1. The contents of the files in the logger

The records with the results and the records with the state of the markers as well as the records with the breaks and pause in the results registration are saved in the files in the logger. Unless otherwise stated the results are written in dB*100. Summary Results are also saved in the files in the logger.

B.2.1.1. Record with the results

The content of the record with the results depends on the selected measurement function and the value set in the **LOGGER** position. The following elements can be present (in the given sequence):

(1) flag record

< flags > :
- b0: 1- the overload detected in X axis, 0 - the overload not detected in X axis
- b1: 1- the overload detected in Y axis, 0 - the overload not detected in Y axis
- b2: 1- the overload detected in Z axis, 0 - the overload not detected in Z axis

(2) results of the measurement from the **X** axis; up to four words are written:

<result1> - **PEAK** result, depending on the value of LoggerP[1] (cf. Tab. B.1.10)
<result2> - **P–P** result, depending on the value of LoggerP[1] (cf. Tab. B.1.10)
<result3> - **MAX** result, depending on the value of LoggerP[1] (cf. Tab. B.1.10)
<result4> - **aw** result, depending on the value of LoggerP[1] (cf. Tab. B.1.10)
<result5> - **VDV** result, depending on the value of LoggerP[1] (cf. Tab. B.1.10)

(3) results of the measurement from the **Y** axis; up to four words are written:

<result1> - **PEAK** result, depending on the value of LoggerP[2] (cf. Tab. B.1.10)
<result2> - **P–P** result, depending on the value of LoggerP[2] (cf. Tab. B.1.10)
<result3> - **MAX** result, depending on the value of LoggerP[2] (cf. Tab. B.1.10)
<result4> - **aw** result, depending on the value of LoggerP[2] (cf. Tab. B.1.10)
<result5> - **VDV** result, depending on the value of LoggerP[2] (cf. Tab. B.1.10)

(4) results of the measurement from the **Z** axis; up to four words are written:

<result1> - **PEAK** result, depending on the value of LoggerP[3] (cf. Tab. B.1.10)
<result2> - **P–P** result, depending on the value of LoggerP[3] (cf. Tab. B.1.10)
<result3> - **MAX** result, depending on the value of LoggerP[3] (cf. Tab. B.1.10)
<result4> - **aw** result, depending on the value of LoggerP[3] (cf. Tab. B.1.10)
<result5> - **VDV** result, depending on the value of LoggerP[3] (cf. Tab. B.1.10)

(5) results of the measurement from the all axes; up to two word is written:

<result1> - **awv** result, depending on the value of VectorLoggerP[1] (cf. Tab. B.1.11)

(6) results of **1/1 OCTAVE** or **1/3 OCTAVE** analysis from **X** axis if **1/1 OCTAVE** or **1/3 OCTAVE** analysis was selected as the measurement function and the **LOGGER SPECTRUM** was activated (SpectrumBuff in Tab. B.1.5);
the sequence of words is written:

<Octave[1]> <Octave[2]> ... <Octave[Noct+NOctTot]>
where:
Octave[i] - the result of **1/1 OCTAVE or 1/3 OCTAVE** analysis (*100 dB); i = 1..NOct+NOctTot

(7) results of **1/1 OCTAVE** or **1/3 OCTAVE** analysis from **Y** axis if **1/1 OCTAVE** or **1/3 OCTAVE** analysis was selected as the measurement function and the **LOGGER SPECTRUM** was activated (SpectrumBuff in Tab. B.1.5);
the sequence of words is written:

<Octave[1]> <Octave[2]> ... <Octave[Noct+NOctTot]>
where:
Octave[i] - the result of **1/1 OCTAVE or 1/3 OCTAVE** analysis (*100 dB); i = 1..NOct+NOctTot

(8) results of **1/1 OCTAVE** or **1/3 OCTAVE** analysis from **Z** axis if **1/1 OCTAVE** or **1/3 OCTAVE** analysis was selected as the measurement function and the **LOGGER SPECTRUM** was activated (SpectrumBuff in Tab. B.1.5);
the sequence of words is written:

<Octave[1]> <Octave[2]> ... <Octave[Noct+NOctTot]>
where:

Octave[i] - the result of **1/1 OCTAVE or 1/3 OCTAVE** analysis (*100 dB); i = 1..NOct+NOctTot

B.2.1.2. Record with the state of the markers

The record with the state of the markers consists of one word:

<0x8nnn>

in which 12 bits nnn denote the state of the markers:
b11 = state of #12 marker
b10 = state of #11 marker
...
b1 = state of #2 marker
b0 = state of #1 marker (human detection marker if Force Detector Mode set to "marker" (cf. App.B.1.5))

B.2.1.3. Record with the breaks in the results registration

The record with the breaks in the results registration consists of four words:

<0xB0ii> <0xB1jj> <0xB2kk> <0xB3nn>

in which ii, jj, kk, nn bytes denote 4-bytes counter of left or skipped records: nnkkjjii (ii is the least significant byte, nn - the most significant byte).

B.2.1.4. Record with the breaks account PAUSE in the results registration

The record with the breaks in the results registration consists of four words:

<0xA0ii> <0xA1jj> <0xA2kk> <0xA3nn>

in which ii, jj, kk, nn bytes denote 4-bytes counter duration of PAUSE in milliseconds:
nnkkjjii (ii is the least significant byte, nn - the most significant byte).

B.2.1.5. Record with the wave file name

The record with the wave file name consists of six words:

<0xC2aa>
<0xccbb>
<0xeedd>
<0xggff>
<0xiihh>
<0xCAaa>

in which:
aa - size of records,
bb cc dd ee ff gg hh ii - 8-bytes name of wave file name

B.2.1.6. Record with Summary Results

The format of the data frame is as follows:

HS	L (optional)	D	L (optional)	HE

where:

HS starting header (1 word)
L length of the block (field is optional and occurs only when b7..b0 in header are set to zero)
D Summary Data:
- Main results (cf. Tab. B.1.17)

- 1/1 OCTAVE analysis results (optional, cf. Tab. B.1.18)
- 1/3 OCTAVE analysis results (optional, cf. Tab. B.1.19)

HE ending header (1 word), which differs from the HS only on b11 bit (thanks to it, it is possible to analyse the recorded file starting from its end)

The HEADER format is as follows:

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0

where:

b15 - 1
b14 - 1
b13 - 0
b12 - 0,
b11 - header type:
0 - HS
1 - HE
b10 - 0
b9 - 1
b8 - 1
b15÷b8 – HS (0xC3), HE (0xCB)
b7÷b0 – length of the block (if zero length of the block is saved in additional word L)

B.2.1.7. Record with Time-domain signal data

This record exists only in the case when the **Time-domain signal recording** is active. The samples of the signal are saved in the blocks. Each block is divided into frames, which are stored in a file among the logger results. The frame starting block and the frame ending it are marked with the b10 and b9 bits set in the header of the frame, respectively. It happens in the case of stopping the recording that the ending frame does not exist.

The format of the data frame is as follows:

HS	L	S	L	HE

where:

HS starting header (1 word)
L block length (1 word), expressed in words (4 + number of samples)
S samples of the measured signal (each sample is written in two bytes; the recording starts with the least significant byte)
HE ending header (1 word), which differs from the HS only on b11 bit (thanks to it, it is possible to analyse the recorded file starting from its end)

The HEADER format is as follows:

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0

where:

b15 - 1
b14 - 0
b13 - 0
b12 - 1, bits b15 ÷ b12 = 9 constitute the marker of the frame
b11 - header type:
0 - HS
1 - HE
b10 - 1 denotes the first frame in the block
b9 - 1 denotes the last frame in the block

b7 - 1 denotes an error (the samples were overwritten in the cycle buffer, which means that the recording in the analysed block is not correct)
b8, b6÷b0 – reserved

B.2.1.8. Record with remote marker data

Word number	Name	Comment
0	0xC702	record ID (start)
1	Length	length of the block together with IDs, [words]
2	MarkerNr	Number of the marker (1-16, 0 - end of all block markers when MarkerType=2)
3	MarkerType	Type of the marker: 0 - point 1 - block (start) 2 - block (end) 3 - time
4	MNL	Marker Name Length in words. Field is optional and is absent for MarkerType = 2.
5 .. 5+MNL	MarkerName	Name of the marker. In case of odd number of MarkerName bytes last byte is 0x00. Field is optional and is absent for MarkerType = 2.
5+MNL+1	StartDate	Marker start date (cf. App. B.4). Field is optional and is only present for MarkerType = 3.
5+MNL+2 .. 5+MNL+3	StartTime	Marker start time (seconds). Field is optional and is only present for MarkerType = 3.
5+MNL+4	EndDate	Marker end date (cf. App. B.4). Field is optional and is only present for MarkerType = 3.
5+ MNL+5 .. 5+ MNL+6	EndTime	Marker end time (seconds). Field is optional and is only present for MarkerType = 3.
5+MNL+1+ 6*(MarkerType=3)	Length	length of the block together with IDs, [words]
5+ MNL+2+ 6*(MarkerType=3)	0xCF02	record ID (end)
…	…	….

B.2.1.9. Record with GPS data

The value equal to -12288 (0xd000) denotes the undefined value.

Word number	Name	Comment
0	0xC703	record ID (start)
1	Length	length of the block together with IDs, [words]
2	Quality	Signal quality: 0 - GPS_NOT_FIX (no signal) 1 - GPS_FIX 2 - GPS_FIX_DIF
3	Time.Sec	Seconds part of time
4	Time.Min	Minutes part of time
5	Time.Hour	Hours part of time
6	Date.Day	Day

7	Date.Month	Month
8	Date.Year	Year
9	Latitude.Deg	Degree part of latitude
10	Latitude.Min	Minutes part of latitude
11	Latitude.Sec	Seconds part of latitude
12	Latitude.MiliSec	Miliseconds part of latitude
13	Latitude.Dir	Latitude direction: N, S
14	Longitude.Deg	Degree part of longitude
15	Longitude.Min	Minutes part of longitude
16	Longitude.Sec	Seconds part of longitude
17	Longitude.MiliSec	Miliseconds part of longitude
18	Longitude.Dir	Longitude direction: E, W
19	Altitude	Altitude (meters)
20	Altitude.10	Decimal part of altitude
21	Speed	Speed * 100 (km/h)
22	Length	length of the block together with IDs, [words]
23	0xCF03	record ID (end)
…	…	….

B.3. Structure of the SETUP file

SvanPC File header - cf. Tab. B.1.1.
File header - cf. Tab. B.1.2.
Unit and software specification - cf. Tab. B.1.3.
SETUP DATA - cf. Tab. B.1.13.
File-end-marker - cf. Tab. B.1.20.

B.4. Date and time

Following function written in C explain how the date and time are coded:

```
void ExtractDateTime(int date, int time, int dt[])
{
      int sec,year;

      sec = ((0xffff&time)<<1); /* time<<1; */
      dt[0] = sec%60; /* sec */
      dt[1] = (sec/60)%60; /* min */
      dt[2] = sec/3600; /* hour */

      dt[3] = date&0x1F; /* day */
      dt[4] = (date>>5)&0x0F; /* month */
      year = (date>>9) & 0x07F;
      dt[5] = year+2000; /* year */
}
```