

APPENDIX B. DATA FILE STRUCTURES

B.1. GENERAL STRUCTURE OF THE SVAN 955 FILE

Each file containing data from the SVAN 955 instrument consists of several groups of words. In the case of the **SVAN 955** (the internal file system rev. **6.04**), there are three different types of files containing:

- the results stored in the file in the instrument's logger (cf. App. B.2);
- the measurement results from the **Sound Level Meter** mode and **DOSE METER** (cf. App. B.3);
- setup data (cf. App. B.4).

Each file has the following elements:

- a file header (cf. Tab. B.1.1);
- the unit and internal software specification (cf. Tab. B.1.2);
- the user's text (a header) stored together with the measurement data (cf. Tab. B.1.3);
- the parameters and global settings, common for all profiles (cf. Tab. B.1.4);
- parameters for measurement trigger (cf. Tab. B.1.5);
- parameters for logger trigger (cf. Tab. B.1.6);
- External I/O settings (cf. Tab. B.1.7);
- the special settings for profiles (cf. Tab. B.1.8);
- RTF parameters (cf. Tab. B.1.9)
- the marker for the end of the file (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 (**SLM**, **DOSE METER**, file from the logger) and on the setting of the **SAVE STAT.** (path: *MENU / FILE / SAVE OPTIONS / SAVE STAT.*). These elements are as follows:

- the main results (cf. Tab. B.1.10_SML or B.1.10_DM);
- statistical levels (cf. Tab. B.1.11)
- the header of the statistical analysis (cf. Tab. B.1.12);
- the results of the statistical analysis (cf. Tab. B.1.13);
- the settings of the instrument saved in the setup file (cf. Tab. B.1.14);
- the header of the file from the logger (cf. Tab. B.1.15);
- the data stored during the measurements in the file of the logger (cf. Tab. B.1.16).

Below, all file structure groups are described separately in Tab. B.1.1 – Tab. B.1.17. 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.

Table B.1.1. FILE HEADER

Word number	Name	Comment
0	0xnn01	[01, nn=header's length]
1..4	FileName	name of the file or logger (8 characters)
5	Reserved	reserved
6	CurrentDate	file creation date (cf. App. B.5)
7	CurrentTime	file creation time (cf. App. B.5)
8..11	AssBufFileName	name of the associated logger or file (8 bytes)
...		...

Table B.1.2. UNIT AND SOFTWARE SPECIFICATION

Word number	Name	Comment
0	0xnn02	[02, nn=specification's length]
1	UnitNumber	unit number
2	UnitType	type of the unit: 955
3	SoftwareVersion	software version: 604
4	SoftwareIssueDate	software issue date
5	DeviceMode	mode of the instrument
6	UnitSubtype	subtype of the unit: 1 - SVAN 955
7	FileSysVersion	file system version
8	LevelMetVersion	level meter version: 603
9	SoftwareSubversion	software subversion: 01
...		...

Table B.1.3. 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.1.4. PARAMETERS AND GLOBAL SETTINGS

Word number	Name	Comment
0	0xnn04	[04, nn=block's length]
1	MeasureStartDate	measure start date (cf. App. B.5)
2	MeasureStartTime	measure start time (cf. App. B.5)
3	DeviceFunction	device function: 1 - SOUND LEVEL METER , 4 - DOSE METER
4	MeasureInput	measurement input type: 2 - Microphone
5	Range	measurement range: 2 - SINGLE
6	UnitFlags	calibration flags
7	RepCycle	repetition cycle: 0 - infinity nnnn - number of repetitions $\in (1 \div 1000)$
8	NofProf	number of profiles (3)
9	StartDelay	start delay time
10..11	IntTimeSec	integration time specified in seconds
12		reserved
13	LeqInt	detector's type in the LEQ function: 0 - LINEAR , 1 - EXPONENT .
14		reserved
15		reserved
16	ExposureTime	exposure time: 1..480 (min)

17	CriterionLevel	criterion level (only DOSE METER): 80, 84, 85, 90 (*10 dB)
18	TresholdLevel	treshold level (only DOSE METER): 0, 75, 80, 85, 90 (*10 dB)
19	ExchangeRate	exchange rate (only DOSE METER): 2, 3, 4, 5
20	CalibrType	last calibration type: 0 - none, 1 - by measurement
21	CalibrDate	last calibration date (cf. App. B.5)
22	CalibrTime	last calibration time (cf. App. B.5)
23		reserved
24		reserved
25	OutdoorFilter	outdoor filter: 0 - OFF , 1 - ON
26	OutdoorType	outdoor filter type: 0 - ENVIRONMENT , 1 - AIRPORT
27	MicComp	compensating filter for microphones: 0 - switched off, 1- switched on
28		reserved
29..47		reserved
...		

Table B.1.5. MEASURE TRIGGER PARAMETERS

Word number	Name	Comment
0	0xnn2B	[2B, nn=block's length]
1	TriggerMode	trigger mode: 0 - OFF , 1 - SLOPE+ , 2 - SLOPE- , 3 - LEVEL+ , 4 - LEVEL- , 6 - GRAD+
2	TriggerSource	source of the triggering signal: 0 - RMS(1) the RMS result from the first profile in the case of TriggerMode= SLOPE+ or SLOPE- : 1 - External IO
3	TriggerLev	level of triggering: 24 ÷ 136 dB (*10)
4	TriggerGrad	gradient of triggering: 1 dB/ms ÷ 100 dB/ms
5	TriggerPre	reserved
6	TriggerPost	reserved
...		

Table B.1.6. LOGGER TRIGGER PARAMETERS

Word number	Name	Comment
0	0xnn2C	[2C, nn=block's length]
1	TriggerMode	trigger mode: 0 - OFF , 3 - LEVEL+ , 4 - LEVEL-
2	TriggerSource	source of the triggering signal: 0 - RMS(1) the RMS result from the first profile
3	TriggerLev	level of triggering: 24 ÷ 136 dB (*10)
4	TriggerGrad	reserved
5	TriggerPre	number of the records taken into account before the fulfilment of the triggering condition ∈ (1 ÷ 50)
6	TriggerPost	number of the records taken into account after the fulfilment of the triggering condition ∈ (1 ÷ 200)
...		

Table B.1.7. EXTERNAL I/O PARAMETERS

Word number	Name	Comment
0	0xnn2E	[2E, nn=block's length]
1	Mode	mode: 0 - ANALOG OUT , 1 - DIGITAL IN , 2 - DIGITAL OUT
2	Function	in case of ANALOG OUT : reserved in case of DIGITAL IN : 0 - EXTERNAL TRIGGER in case of DIGITAL OUT : 0 - TRIG. PULSE , 1 - ALARM PULSE
3	ActiveLevel	in case of DIGITAL OUT and ALARM PULSE : 0 - LOW , 1 - HIGH in other cases reserved
4	Source	in case of DIGITAL OUT and ALARM PULSE : 0 - PEAK(1) , 1 - SPL(1) , 2 - LEQ(1) in other cases reserved
5	AlarmLevel	in case of DIGITAL OUT and ALARM PULSE : 30 ÷ 140 dB (*10) in other cases reserved
6	AO_Direct	reserved
7	AO_DA	reserved
8	AO_Source	reserved
9	Polarisation	in case of DIGITAL OUT and TRIG. PULSE : 0 - POSITIVE , 1 - NEGATIVE in other cases reserved
...		

Table B.1.8. SPECIAL SETTINGS FOR PROFILES

Word number	Name	Comment
0	0xnn05	[05, nn=block's length]
1	0x0307	[used_profile, profile's mask]
2	0xmm06	[06, mm=sub-block's length]
3	DetectorP[1]	detector type in the 1 st profile: 0 - IMP. , 1 - FAST , 2 - SLOW
4	FilterP[1]	filter type in the 1 st profile: 0 - Z , 2 - A , 3 - C
5	BufferP[1]	logger contents in the 1 st profile defined as a sum of: 0 - none, 1 - PEAK , 2 - MAX , 4 - MIN , 8 - RMS
6	CalibrFactor[1]	calibration factor (*10 dB) in the 1 st profile
7	ProfileFlags[1]	flags in the 1 st profile
8	0xmm06	[06, mm=sub-block's length]
9	DetectorP[2]	detector type in the 2 nd profile: 0 - IMP. , 1 - FAST , 2 - SLOW
10	FilterP[2]	filter type in the 2 nd profile: 0 - Z , 2 - A , 3 - C
11	BufferP[2]	logger contents in the 2 nd profile defined as a sum of: 0 - none, 1 - PEAK , 2 - MAX , 4 - MIN , 8 - RMS
12	CalibrFactor[2]	calibration factor (*10 dB) in the 2 nd profile
13	ProfileFlags[2]	flags in the 2 nd profile
14	0xmm06	[06, mm=sub-block's length]
15	DetectorP[3]	Detector type in the 3 rd profile: 0 - IMP. , 1 - FAST , 2 - SLOW
16	FilterP[3]	filter type in the 3 rd profile: 0 - Z , 2 - A , 3 - C
17	BufferP[3]	logger contents in the 3 rd profile defined as a sum of: 0 - none, 1 - PEAK , 2 - MAX , 4 - MIN , 8 - RMS
18	CalibrFactor[3]	calibration factor (*10 dB) in the 3 rd profile
19	ProfileFlags[3]	flags in the 3 rd profile
...		

Table B.1.9. RTF PARAMETERS (reserved)

Word number	Name	Comment
0	0xnn21	[21, nn=block's length]
1	Type [1]	reserved
2	Rank [1]	reserved
3..4	Lower pole [1]	reserved
5..6	Upper pole [1]	reserved
7	Type [2]	reserved
8	Rank [2]	reserved

9..10	Lower pole [2]	reserved
11..12	Upper pole [2]	reserved
13	Type [3]	reserved
14	Rank [3]	reserved
15..16	Lower pole [3]	reserved
17..18	Upper pole [3]	reserved

Table B.1.10_SLM. MAIN RESULTS IN SLM MODE

Word number	Name	Comment
0	0xnn07	[07, nn=block's length]
1	0x0307	[used_profile, profile's mask]
2	0xmm08	[08, mm=sub-block's length]
3..4	MeasureTime	time of the measurement
5	Result[1][1]	PEAK value in the 1 st profile
6	Result[1][2]	Reserved
7	Result[1][3]	maximal value (MAX) in the 1 st profile
8	Result[1][4]	minimal value (MIN) in the 1 st profile
9	Result[1][5]	SPL value in the 1 st profile
10	Result[1][6]	LEQ value in the 1 st profile
11	Result[1][7]	Lden value in the 1 st profile
12	Result[1][8]	Ltm3 value in the 1 st profile
13	Result[1][9]	Ltm5 value in the 1 st profile
14	Result[1][10]	Reserved
15	Result[1][11]	Reserved
16	UnderRes[1]	underrange value in the 1 st profile
17	0xmm08	[08, mm=sub-block's length]
18..19	OVL	overload time
20	Result[2][1]	PEAK value in the 2 nd profile
21	Result[2][2]	reserved
22	Result[2][3]	maximal value (MAX) in the 2 nd profile
23	Result[2][4]	minimal value (MIN) in the 2 nd profile
24	Result[2][5]	SPL value in the 2 nd profile
25	Result[2][6]	LEQ value in the 2 nd profile
26	Result[2][7]	Lden value in the 2 nd profile
27	Result[2][8]	Ltm3 value in the 2 nd profile
28	Result[2][9]	Ltm5 value in the 2 nd profile
29	Result[2][10]	reserved
30	Result[2][11]	reserved
31	UnderRes[2]	underrange value in the 2 nd profile
32	0xmm08	[08, mm=sub-block's length]
33..34	Reserved	reserved
35	Result[3][1]	PEAK value in the 3 rd profile
36	Result[3][2]	Reserved
37	Result[3][3]	maximal value (MAX) in the 3 rd profile

38	Result[3][4]	minimal value (MIN) in the 3 rd profile
39	Result[3][5]	SPL value in the 3 rd profile
40	Result[3][6]	LEQ value in the 3 rd profile
41	Result[3][7]	Lden value in the 3 rd profile
42	Result[3][8]	Ltm3 value in the 3 rd profile
43	Result[3][9]	Ltm5 value in the 3 rd profile
44	Result[3][10]	reserved
45	Result[3][11]	reserved
46	UnderRes[3]	underrange value in the 3 rd profile
...

Table B.1.10_DM. MAIN RESULTS IN DOSE METER MODE

Word number	Name	Comment
0	0xnn07	[07, nn=block's length]
1	0x0307	[used_profile, profile's mask]
2	0xmm08	[08, mm=sub-block's length]
3..4	MeasureTime	time of the measurement
5	Result[1][1]	PEAK value in the 1 st profile
6	Result[1][2]	reserved
7	Result[1][3]	maximal value (MAX) in the 1 st profile
8	Result[1][4]	minimal value (MIN) in the 1 st profile
9	Result[1][5]	SPL value in the 1 st profile
10	Result[1][6]	LEQ value in the 1 st profile
11	Result[1][7]	Lden value in the 1 st profile
12	Result[1][8]	Ltm3 value in the 1 st profile
13	Result[1][9]	Ltm5 value in the 1 st profile
14	Result[1][10]	LAV value in the 1 st profile
15	Result[1][11]	TLAV value in the 1 st profile
16	UnderRes[1]	underrange value in the 1 st profile
17	0xmm08	[08, mm=sub-block's length]
18..19	OVL	overlad time
20	Result[2][1]	PEAK value in the 2 nd profile
21	Result[2][2]	reserved
22	Result[2][3]	maximal value (MAX) in the 2 nd profile
23	Result[2][4]	minimal value (MIN) in the 2 nd profile
24	Result[2][5]	SPL value in the 2 nd profile
25	Result[2][6]	LEQ value in the 2 nd profile
26	Result[2][7]	Lden value in the 2 nd profile
27	Result[2][8]	Ltm3 value in the 2 nd profile
28	Result[2][9]	Ltm5 value in the 2 nd profile
29	Result[2][10]	LAV value in the 2 nd profile
30	Result[2][11]	TLAV value in the 2 nd profile
31	UnderRes[2]	underrange value in the 2 nd profile
32	0xmm08	[08, mm=sub-block's length]

33..34	Reserved	reserved
35	Result[3][1]	PEAK value in the 3 rd profile
36	Result[3][2]	reserved
37	Result[3][3]	maximal value (MAX) in the 3 rd profile
38	Result[3][4]	minimal value (MIN) in the 3 rd profile
39	Result[3][5]	SPL value in the 3 rd profile
40	Result[3][6]	LEQ value in the 3 rd profile
41	Result[3][7]	Lden value in the 3 rd profile
42	Result[3][8]	Ltm3 value in the 3 rd profile
43	Result[3][9]	Ltm5 value in the 3 rd profile
44	Result[3][10]	LAV value in the 3 rd profile
45	Result[3][11]	TLAV value in the 3 rd profile
46	UnderRes[3]	underrange value in the 3 rd profile
...

B.1.11. STATISTICAL LEVELS

Word number	Name	Comment
0	0xnn17	[17, nn=block's length]
1	0xpprr	[pp=used_profile, rr=profile's mask]
2	N_stat_level	number of statistical levels = N
3+i*(pp+1)	nn[i]	number of the Lnn statistics; i=0..N-1
3+i*(pp+1)+p	Lnn [i,p]	value of the Lnn statistics for profile p (p=1..pp)
...

Table B.1.12. HEADER OF THE STATISTICAL ANALYSIS (the presence depends on the SAVE STAT. position)

Word number	Name	Comment
0	0xnn09	[09, nn=block's length]
1	0x0703	[03=number of profiles, 07=active profiles mask]
2	0xmm0A	[0A, mm=sub-block's length]
3	NofClasses[1]	number of classes in the first profile (120)
4	BottomClass[1]	bottom class boundary (*10 dB) in the first profile
5	ClassWidth[1]	class width (*10 dB) in the first profile
6	0xmm0A	[0A, mm=sub-block's length]
7	NofClasses[2]	number of classes in the second profile (120)
8	BottomClass[2]	bottom class boundary (*10 dB) in the second profile
9	ClassWidth[2]	class width (*10 dB) in the second profile
10	0xmm0A	[0A, mm=sub-block's length]
11	NofClasses[3]	number of classes in the third profile (120)
12	BottomClass[3]	bottom class boundary (*10 dB) in the third profile
13	ClassWidth[3]	class width (*10 dB) in the third profile
...

Table B.1.13. RESULTS OF THE STATISTICAL ANALYSIS

Word number	Name	Comment
0	0x010B	[0B, prof_mask#1]
1	SubblockLength	2 * number of classes in the first profile + 2
2..3	Histogram[1][1]	the first counter in the first profile
4..5	Histogram[1][2]	the second counter in the first profile
.....
0	0x020B	[0B, prof_mask#2]
1	SubblockLength	2 * number of classes in the second profile + 2
2..3	Histogram[2][1]	the first counter in the second profile
4..5	Histogram[2][2]	the second counter in the second profile
.....
0	0x040B	[0B, prof_mask#3]
1	SubblockLength	2 * number of classes in the third profile + 2
2..3	Histogram[3][1]	the first counter in the third profile
4..5	Histogram[3][2]	the second counter in the third profile
.....

Table B.1.14. SETUP FILE

Word number	Name	Comment
0	0x0020	[20, 00=block's length in the second word]
1	BlockLength	length of the block
2..BlockLength-1	SetupData	saved setup values

Table B.1.15. HEADER OF THE FILE FROM THE LOGGER

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 frequency (*100 Hz): 3150
4	NOctTer	number of 1/1 OCTAVE results: 10
5	NOctTerTot	number of TOTAL values = 3
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
...



Note: The current logger time step in seconds can be obtained from the formulae:
 $T = \text{BuffTSec} + \text{BuffTMiliseC} / 1000$

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. FILE END MARKER

Word number	Name	Comment
0	0xFFFF	file end marker

B.2. STRUCTURE OF THE FILE CONTAINING RESULTS FROM LOGGER'S FILE

FILE HEADER - cf. Tab. B.1.1.

UNIT AND SOFTWARE SPECIFICATION - cf. Tab. B.1.2.

USER'S TEXT - cf. Tab. B.1.3.

PARAMETERS AND GLOBAL SETTINGS - cf. Tab. B.1.4.

MEASUREMENT TRIGGER SETTINGS - cf. Tab. B.1.5.

LOGGER TRIGGER SETTINGS - cf. Tab. B.1.6.

EXTERNAL I/O SETTINGS - cf. Tab. B.1.7.

SPECIAL SETTINGS FOR PROFILES - cf. Tab. B.1.8.

RTF PARAMETERS - cf. Tab. B.1.9

HEADER OF THE FILE FROM THE LOGGER - cf. Tab. B.1.15.

CONTENTS OF THE FILE FROM THE LOGGER - cf. Tab. B.1.16. and the description in B.2.1.

FILE END MARKER - cf. Tab. B.1.17.

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 in the results registration are saved in the files in the logger.

B.2.1.1. Record with the results

The contents of the record with the results depends on the selected measurement function and the value set in the **LOGGER** position of the **PROFILE x** and **SPECTRUM** sub-lists. The following elements can be present (in the given sequence):

- (1) results of the measurement from the first profile if the corresponding **LOGGER** position was active (*paths: MENU / INPUT / PROFILE 1 / LOGGER PEAK; INPUT / PROFILE 1 / LOGGER MAX; INPUT / PROFILE 1 / LOGGER MIN; INPUT / PROFILE 1 / LOGGER RMS*); up to four words are written:

<result1> - **PEAK** result, depending on the value of BufferP[1] (cf. Tab. B.1.8)

<result2> - **MAX** result, depending on the value of BufferP[1] (cf. Tab. B.1.8)

<result3> - **MIN** result, depending on the value of BufferP[1] (cf. Tab. B.1.8)

<result4> - **RMS** result, depending on the value of BufferP[1] (cf. Tab. B.1.8)

- (2) results of the measurement from the second profile if the corresponding **LOGGER** position was active (*paths: MENU / INPUT / PROFILE 2 / LOGGER PEAK; INPUT / PROFILE 2 / LOGGER MAX; INPUT / PROFILE 2 / LOGGER MIN; INPUT / PROFILE 2 / LOGGER RMS*); up to four words are written:

<result1> - **PEAK** result, depending on the value of BufferP[2] (cf. Tab. B.1.8)
 <result2> - **MAX** result, depending on the value of BufferP[2] (cf. Tab. B.1.8)
 <result3> - **MIN** result, depending on the value of BufferP[2] (cf. Tab. B.1.8)
 <result4> - **RMS** result, depending on the value of BufferP[2] (cf. Tab. B.1.8)

(3) results of the measurement from the third profile if the corresponding **LOGGER** position was active
 (*paths: MENU / INPUT / PROFILE 3 / LOGGER PEAK; INPUT / PROFILE 3 / LOGGER MAX;
 INPUT / PROFILE 3 / LOGGER MIN; INPUT / PROFILE 3 / LOGGER RMS*); up to four words are
 written:

<result1> - **PEAK** result, depending on the value of BufferP[3] (cf. Tab. B.1.8)
 <result2> - **MAX** result, depending on the value of BufferP[3] (cf. Tab. B.1.8)
 <result3> - **MIN** result, depending on the value of BufferP[3] (cf. Tab. B.1.8)
 <result4> - **RMS** result, depending on the value of BufferP[3] (cf. Tab. B.1.8)

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

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.3. STRUCTURE OF THE FILE WITH THE RESULTS FROM THE SLM MODE AND DOSE METER

FILE HEADER - cf. Tab. B.1.1.

UNIT AND SOFTWARE SPECIFICATION - cf. Tab. B.1.2.

USER'S TEXT - cf. Tab. B.1.3.

PARAMETERS AND GLOBAL SETTINGS - cf. Tab. B.1.4.

MEASUREMENT TRIGGER SETTINGS - cf. Tab. B.1.5.

LOGGER TRIGGER SETTINGS - cf. Tab. B.1.6.

EXTERNAL I/O SETTINGS - cf. Tab. B.1.7.

SPECIAL SETTINGS FOR PROFILES - cf. Tab. B.1.8.

RTF PARAMETERS - cf. Tab. B.1.9

MAIN RESULTS - cf. Tab. B.1.10_SLM or B.10_DM.

STATISTICAL LEVELS - cf. Tab. B.1.11.

HEADER OF THE STATISTICAL ANALYSIS (the presence depends on the **SAVE STAT.** position) -
 cf. Tab. B.1.12.

RESULTS OF THE STATISTICAL ANALYSIS (the presence depends on the **SAVE STAT.** position) -
 cf. Tab. B.1.13.

FILE END MARKER - cf. Tab. B.1.17.

B.4. STRUCTURE OF THE SETUP FILE

FILE HEADER - cf. Tab. B.1.1.

UNIT AND SOFTWARE SPECIFICATION - cf. Tab. B.1.2.

SETUP DATA - cf. Tab. B.1.14

FILE END MARKER - cf. Tab. B.1.17.

B.5. DATE AND TIME

Following function written in C explains 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 */
}
```