A. REMOTE CONTROL

The USB 1.1 interface is the serial one working with 12 MHz clock which enables one to control remotely the unit. Its speed is relatively high and it ensures the common usage of USB in all produced nowadays Personal Computers.

The RS 232 interface is also available but as an option. In order to activate this option the user has to by a special cable with a programmed processor. This interface complies with CCIT V.24 standard. Practically all Personal Computers can be linked to the instrument by means of this interface. The maximum available transmission speed is equal to 115200 bits / sec.

Note: *For reliable operation of the RS 232, proper synchronisation of the transmission by* ***CTS*** *and* ***RTS*** *lines (according to their definitions) is required.*

Two other serial interfaces are also available as the options: IrDA and HOST USB. The IrDA one can be unlocked by a software code while the HOST USB is the hardware option, which requires the **modification of the internal hardware of the instrument**.

The functions, which are developed in order to control data flow in the serial interfaces, ensure:
- Bi-directional data transmission,
- Remote control of the instrument.

The user, in order to programme the serial interface, has to:
1. send "the function code",
2. send an appropriate data file
or
3. receive a data file.

A.1. Input / Output transmission types

The following basic input / output transmission types (called functions) are available:

#1 input / output of the control setting codes,
#2 read out of the measurement results in the **SLM** mode,
#4 read out of the data file from the internal Flash-disc,
#5 read out of the statistical analysis results,
#7 special control functions,
#9 writing the data file into the internal flash-disk.

A.2. FUNCTION #1 - Input / Output of the control setting codes

#1 function enables the user to send the control setting codes to the instrument and read out a file containing the current control state. A list of the control setting codes is given in Tab. A.1. The format of #1 function is defined as follows:

#1,Xccc,Xccc,(...),Xccc;

or

#1,Xccc,X?,Xccc,(...),X?,Xccc;

where:

X - the group code, **ccc** - the code value,
X? - the request to send the current X code setting.

The instrument outputs in this case a control settings file for all requests X? in the following format:

#1,Xccc,Xccc,(...),Xccc;

In order to read out all current control settings the user should send to the device the following sequence of characters:

#1;

The instrument outputs in this case a file containing all control settings given in Tab. A1 in the format:

#1,Xccc,Xccc,(...),Xccc;

Example: The instrument sends the following sequence of characters as an answer for the mentioned above request:

#1,U955,N4106,WL6.03,W6.03.1,Q0.2,M1,F2:1,F3:2,F3:3,C1:1,C0:2,C2:3,B0:1,B3:2,B15:3,d1s,D1s, K5,L0,m0,s0,l75,Y3,Xx0,Xz0,Xs3,Xn1000,XA0,XR0,XS0,XP0,XD0,XC0,XT0,XL75,XQ0,Xq0,S0,O15,T1, e480,c1,h0,x2;

means that:

- the SVAN 955 is investigated (U955);
- its number is 4106 (N4106);
- the instrument has the **LEVEL METER** software version number 6.03 (WL6.03);
- the **DOSE METER** software version number is 6.03.1 (W6.03.1);
- the calibration factor is equal to 0.2 dB (Q0.2);
- the **Sound LEVEL METER** mode is selected (M1);
- the **A** filter is selected in profile 1 (F2:1);
- the **C** filter is selected in profile 2 (F3:2);
- the **C** filter is chosen in profile 3 (F3:3);
- the **FAST** detector is selected in profile 1 (C1:1);
- the **IMPULSE** detector is chosen in profile 2 (C0:2);
- the **SLOW** detector is selected in profile 3 (C2:3);
- the logger's buffer is not filled by the results from profile 1 (B0:1);
- the **PEAK** and **MAX** values are stored in the files of the logger from profile 2 (B3:2);
- the **PEAK**, **MAX**, **RMS** and **MAX** values are stored in the files of the logger from profile 3 (B15:3);
- the results are stored in a logger's file every 1 second (d1s);
- the integration period is equal to 1 second (D1s);
- the measurement has to be repeated 5 times (K5);
- the linear detector is selected to the **LEQ** calculations (L0);
- the triggering is switched off (m0);
- the RMS(1) result from the first profile is used as the triggering signal (s0);
- the trigger level is equal to 75 dB (l75);
- the delay of the start of the measurements is equal to 3 seconds (Y3);
- the analogue output is selected in the Ext. I/O input/output socket of the instrument (Xx0);
- in the case of the **DIGITAL OUT** selection, the active function is **TRIG. PULSE** (Xz0);
- in the case of the **ALARM PULSE** selection the active level is **LOW** (Xc0);
- as the alarm source the **PEAK(1)** value from the first profile is taken under consideration (Xs3);
- the alarm level is equal to 100 dB (Xn1000);
- the **AUTO SAVE** function is switched off (XA0);

- the RAM file is switched off (XR0);
- the statistics are not saved (XS0);
- the file replacement is switched off (XP0);
- the direct save is switched off (XD0)
- the save confirmation is not active (XC0);
- the logger triggering mode is switched off (XT0);
- the logger triggering level is set to 75 dB;
- the number of the records before the triggering saved in a file of the logger is equal to 0 (XQ0);
- the number of records registered after the moment in which the measured signal does not fulfil any longer the condition of the triggering is equal to 0 (Xq0);
- the instrument is in the Stop state (S0);
- the triggering gradient is set to 15 dB/ms (O15);
- the logger is active (T1);
- the exposition time is set to 8 hours (e480);
- the criterion level is chosen as 80 dB (c1);
- the threshold level is None (h0);
- the exchange rate is set to 2 dB (x2).

Note: *All bytes of that transmission are ASCII characters.*

A.3. FUNCTION #2 - measurement results read-out in the SLM mode

#2 function enables one to read out the current measurement result from the selected profile in the SLM Mode.

Notice: *This function can also be programmed while measurements are taking place. In this case, the RMS values measured* ***after entering #2 function*** *are sent out.*

#2 function has the format defined as follows:

#2,p,X?,X?,X?,(...),X?;

where:
X - the code of the result,
p - the number of the profile (1, 2 or 3).

Notice: *After finishing the measurement,* ***#2*** *function is no longer active and has to be reprogrammed in order to read-out successive measurements.*

The instrument sends the values of results in the format defined as follows:

#2,p,Xccc,Xccc,Xccc,(...),Xccc; (where **p** - the number of the profile: 1, 2 or 3)

or

#2,?; (when the results are not available).

The codes of the results from the sound **LEVER METER** mode are defined as follows:

v the underrange flag (ccc equals to 0 when the overload did not occur, 2 when the underrange took place during the last measurement period but did not occur in the last second of the measurement

and 3 when the underrange took place during the last measurement period and it lasted in the last second of the measurement);

V the overload flag (ccc equals to 0 or 1);

T time of the measurement (ccc – value in seconds);

P the **PEAK** value (ccc – the value in dB);

M the **MAX** value (ccc – the value in dB);

N the **MIN** value (ccc – the value in dB);

S the **SPL** result (ccc – the value in dB);

R the **LEQ** result (ccc – the value in dB).

U the **SEL** result (ccc – the value in dB);

B(k) the **Lden** result (ccc – the value in dB; k – flag determining the kind of the result);

I(nn) the **LEPd** result (ccc – the value in dB, nn – the value of Exposure Time in minutes);

Y the **Ltm3** result (ccc – the value in dB);

Z the **Ltm5** result (ccc – the value in dB);

L(nn) the value L of the nn statistics (ccc – the value in dB).

Notice: *In the case of **Lden**, the value **k** placed in the parenthesis after the code **B**, denotes the kind of the currently measured result. The kind of the **Lden** result depends on the time during which the measurements were performed (**d** denotes day, **e** denotes evening and **n** denotes night). The corresponding values of k parameter and the kind of the measured **Lden** result are presented below:*

- ***k** = 1* — ***Ld** result,*
- ***k** = 2* — ***Le** result,*
- ***k** = 3* — ***Lde** result,*
- ***k** = 4* — ***Ln** result,*
- ***k** = 5* — ***Lnd** result,*
- ***k** = 6* — ***Len** result,*
- ***k** = 7* — ***Lden** result.*

The codes of the results from the **DOSE METER** mode are defined as follows:

v the underrange flag (ccc equals to 0 when the overload did not occur, 2 when the underrange took place during the last measurement period but did not occur in the last second of the measurement and 3 when the underrange took place during the last measurement period and it lasted in the last second of the measurement);

V the overload flag (ccc equals to 0 or 1);

T time of the measurement (ccc – value in seconds);

P the **PEAK** value (ccc – the value in dB);

M the **MAX** value (ccc – the value in dB);

N the **MIN** value (ccc – the value in dB);

S the **SPL** result (ccc – the value in dB);

D the **DOSE** result (ccc – the value in %);

d the **D_8h** result (ccc – the value in %);

A the **LAV** result (ccc – the value in dB);

R the **LEQ** result (ccc – the value in dB);

U the **SEL** result (ccc – the value in dB);

u the **SEL8** result (ccc – the value in dB);

E the **E** result (ccc – the value in Pa^2h);

e the **E_8h** result (ccc – the value in Pa^2h);

I(nn) the **LEPd** result (ccc – the value in dB, nn – the value of Exposure Time in minutes);

J the **PSEL** result (ccc – the value in dB);

Y the **Ltm3** result (ccc – the value in dB);

Z the **Ltm5** result (ccc – the value in dB);

L(nn) the value L of the nn statistics (ccc – the value in dB).

The exemplary results of the instrument's response after sending to it the following sequence of characters: **#2,1;** coming from the first profile are given below:

a) for the case of the **LEVEL METER** mode:

#2,1,v2,V0,T39,P125.4,M107.0,N20.6,S81.7,R102.1,U118.0,B(4)112.1,I(480)102.1,Y103.9,Z105.4, L(01)107.9,L(10)107.6,L(20)107.2,L(30)102.8,L(40)99.0,L(50)96.7,L(60)82.5,L(70)54.5,L(80)20.9, L(90)20.4;

b) and for the case of the **DOSE METER** mode:

#2,1,v3,V0,T60,P116.0,M113.0,N20.6,S20.9,D14,d6635,A98.2,R98.2,U116.0,u142.8,E0.04,e21.14, I(480)98.2,J71.4,Y103.1,Z102.9,L(01)113.5,L(10)96.1,L(20)82.8,L(30)21.3,L(40)20.8,L(50)20.7, L(60)20.5,L(70)20.4,L(80)20.2,L(90)20.1;

Notice: *The presented above order of the measurement results sent out by the instrument does not depend about the characters sent to the unit.*

Example: After sending to the instrument the string:

#2,1,T?,R?,V?,P?,L?;

the unit sends out the results of measurement coming from the first profile in predefined, described above, order:

#2,1,V0,T39,P125.4,R102.1,L(01)107.9,L(10)107.6,L(20)107.2,L(30)102.8,L(40)99.0,L(50)96.7,L(60)82.5 ,L(70)54.5,L(80)20.9,L(90)20.4;

Notice: *The value displayed on the screen during the result's presentation is sent out from the instrument in the case when **nn** is not given after **X** character.*

Notice: *All bytes of that transmission are ASCII characters.*

A.5. FUNCTION #4 - read-out of the data file from the internal flash-disc

#4 function enables the user to read-out the data file from the internal Flash-disc memory. The data file formats are given in Appendix B.

#4 function formats are defined as follows:

#4,0,\;	the file containing the catalogue,
#4,0,?;	the count of the files,
#4,0,index,count;	the part of the file containing the catalogue,

where:

index - first record,
count - number of records in the catalogue.

#4,1,fname; the file containing the measurement results,
#4,1,fname,?; file size,
#4,1,fname,offset,length; the part of the file containing the measurement results,
#4,1<address,length; the part of the file containing the measurement results,

where:

fname - name containing not more than eight-characters,
offset - offset from the beginning of the file,
length - number of bytes to read,
address - absolute internal address,

#4,2,fname; the file containing the logger results,
#4,2,fname,?; file size,
#4,2,fname,offset,length; the part of file containing the logger results,

where:

fname – name containing not more than eight-characters
offset - offset from the beginning of the file,
length - number of bytes to read,

#4,3; the RAM file,
#4,3,?; size of RAM file,
#4,3,offset,length; the part of RAM file,

where:

offset - offset from the beginning of the RAM file,
length - number of bytes to read,

Notice: *The "\" character is treated as the file name of the catalogue and must be sent to the instrument.*

All data words are sent as **<LSB>,<MSB>**.

When an error is detected in the file specification or data, the instrument will send:

#4,?;

The catalogue of the files is a set of the records containing 16 words (16 bits each). Each record describes one file saved in the instrument's Flash-disc. The record structure is as follows:

words 0 - 3 8 characters of the file name,
word 4 file type (binary number),
word 5 reserved,
word 6 the least significant word of the file size,
word 7 the most significant word of the file size,
words 8 - 15 reserved.

A.6. FUNCTION #5 - statistical analysis results read-out

#5 function enables one to read out the statistical analysis results.

#5 function format is defined as follows:

#5,p;

where:

p the source of the statistical analysis results, for p = 1, 2 or 3 it is the corresponding profile

The device responds, sending the current classes of the statistics in the following format:

#5,p;<Status Byte> <LSB of the transmission counter> <MSB of the transmission counter> <NofClasses><BottomClass><ClassWidth><Counter of the class> (...) <Counter of the class>

Status Byte gives the information about the current state of the instrument.

D7	D6	D5	D4	D3	D2	D1	D0

where:

D7 = 0 means "overload does not happen",
= 1 means "overload appeared",
D6 = 1 reserved,
D5 = 0 the instantaneous current result (RUN State),
= 1 the final result (STOP State),
D0 to D4 reserved bits.

Notice: *There is not any succeeding transmission in the case when the* ***Status Byte*** *is equal to zero.*

The **transmission counter** is a two-byte word denoting the number of the remaining bytes to be transmitted. Its value is calculated from the formulae:

Transmission counter = 6+n * (4 * the number of the classes in the statistics)

where:

n the number of the transmitted statistics. For p = 1, 2 or 3 only one statistic is transmitted (n = 1).

NofClasses is a two-byte word denoting the number of classes in the statistic.

BottomClass is a two-byte word denoting the lower limit of the first class (*10 dB).

ClassWidth is a two-byte word denoting the width of the class (*10 dB).

Counter of the class is a four-byte word containing the number of the measurements belonging to the current class.

Notice: *The bytes in the words are sent according to the scheme* ***<LSByte>..<MSByte>****.*

A.7. FUNCTION #7 - special control functions

Function **#7** enables the user to perform special control functions. **Some of them should be used with the extreme care.**

#7 function formats are defined as follows:

#7,CB;

This function clears the logger memory - all logger files will be deleted. The function returns **#7,CB;** This function is not accepted while the instrument is in the RUN state.

#7,BF;

This function returns logger memory free space in the format: **#7,BF,ddddd;** (**ddddd** - number of bytes in decimal format).

#7,BN;

This function returns the number of logger files created to the current time in the format: **#7,BN,ddddd;** (**ddddd** - number of logger files in decimal format).

#7,RT;

This function returns current real time clock settings in the format: **#7,RT,hh,mm,ss,DD,MM,YYYY;** where **hh:mm:ss** denotes the time and **DD/MM/YYYY** gives the date.

#7,RT,hh,mm,ss,DD,MM,YYYY;

This function sets the current real time clock and returns the following sequence of characters: **#7,RT;**

#7,AS;

This function returns current real time and date settings for the AutoStart function in the format: **#7,AS,e,hh,mm,DD,Rhh,Rmm;** where e=1 if AutoStart function is switched ON in SINGLE mode, e=2 if AutoStart function is switched ON in MULTI mode or 0 if it is switched OFF, **hh:mm** gives the time, **DD** gives the day for the current date, **Rhh,Rmm** gives the repetitions time.

#7,AS,e,hh,mm,DD,Rhh,Rmm;

This function uses the given time and date settings for AutoStart function and returns the following sequence of characters: **#7,AS;**

#7,IC;

Reserved.

#7,SC;

Reserved.

#7,DA;

This function deletes all files (result files and setup files). The function returns **#7,DA;**
This function is not accepted while the instrument is in the RUN state.

#7,LP;

Reserved.

#7,BP;

Reserved.

#7,ME;

This function returns the size of internal flash memory in format **#7,ME,FlashMB;**

#7,LS,setup_name;

This function loads setup and writes settings into EEPROM. The selected file must exist. The function returns **#7,LS;**

#7,SS;

This function creates setup file based on the current settings. The function returns **#7,SS;**

#7,HO;

This function enables one to calibrate the instrument via the Harvest SPE Modems.

#7,CS;

This function clears current setup.

#7,DF;
#7,DF,file_name;
#7,DF,file_name<address;

This function deletes all result files or deletes file specified by **file_name** or internal flash address.

#7,DS;
#7,DS,file_name;
#7,DS,file_name<address;

This function deletes all setup files or deletes file specified by **file_name** or internal flash address.

#7,US;

This function returns unit subversion.

#7,BS;

This function returns battery state in %. If the instrument is powered from external power – the function returns value -1 or if it is powered from the usb interface – the function returns -2.

#7,DL;

This function returns day time limits in format **#7,DL,x;**

#7,DL,x;

This function enables (x = 1) or disables (x = 0) day time limits and returns the following sequence of characters: **#7,DL;**

#7,OF;

This function returns the outdoor filter in the following format **#7,OF,x;**

#7,OF,x;

This function enables (x = 1) or disables (x = 0) the outdoor filter and returns the following sequence of characters: **#7,OF;**

#7,SL;

This function returns all statistical levels in the format **#7,SL,sl1,sl2,sl3,sl4,sl5,sl6,sl7,sl8,sl9,sl10;**

#7,SL,sl_index,sl_level;

This function sets statistical levels where **sl_index** is the statistical index, **sl_level** is the statistical level and returns the following sequence of characters: **#7,SL;**

#7,MC;

This function returns microphone compensation in the format **#7,MC,x;**

#7,MC,x;

This function enables (x = 1) or disables (x = 0) the microphone compensation and returns the following sequence of characters: **#7,MC;**

#7,LA;

This function returns current language in the format: **#7,LA,xx;** where **xx** is language codes: **EN** (English), **IT** (Italian), **PL** (Polish), **RU** (Russian), **HU** (Hungarian), **TU** (Turkish), **NL** (Flemish), **FR** (French), **SP** (Spanish).

#7,PO;

This function powers off the instrument.

#7,FT;

This function returns the outdoor filter type in the format **#7,FT,xxx;**

#7,FT,xxx;

This function sets the outdoor filter type: airport (xxx = 1), or environmental (xxx = 0) and returns the following sequence of characters: **#7,FT;**

#7,BD;

This function returns the baud rate in the format **#7,BD,xxx;**

#7,BD,xxx;

This function sets the baud rate and returns the following sequence of characters: **#7,BD;** where **xxx** means:

xxx=8: 115200
xxx=7: 57600
xxx=6: 38400
xxx=5: 19200
xxx=4: 9600
xxx=3: 4800
xxx=2: 2400
xxx=1: 1200

#7,TO;

This function returns the RS 232 time out in the format **#7,TO,xxx;**

#7,TO,xxx;

This function sets the RS 232 time out in seconds where **xxx** $\in$ (1 ÷ 60) and returns the following sequence of characters: **#7,TO;**

#7,UH;

This function returns the USB host port mode in the format **#7,UH,xxx;**

#7,UH,xxx;

This function sets the USB host port mode RS 232 (xxx = 0), usb disk (xxx = 1) and returns the following sequence of characters: **#7,UH;**

#7,WS;

This function returns the states of warnings if results are not saved in the format **#7,WS,x;**

#7,WS,x;

This function enables (x = 1) or disables (x = 0) the warnings if results are not saved and returns the following sequence of characters: **#7,WS;**

#7,RR;

This function returns the real time results mode in the format **#7,RR,xxx;**

#7,RR,xxx;

This function sets the real time results mode: samples (xxx = 0), or logger results (xxx = 1) and returns the following sequence of characters: **#7,RR;**

#7,WF;

This function returns the states of warnings if connected usb disk contains less free spaces than selected threshold in the format **#7,WF,x;**

#7,WF,x;

This function enables (x = 1) or disables (x = 0) the warnings if the connected usb disk contains less free spaces than selected threshold and returns the following sequence of characters: **#7,WF;**

#7,WM;

This function returns the threshold for free spaces warnings in the format **#7,WM,xxx;**

#7,WM,xxx;

This function sets the threshold for free spaces warnings, **xxx** $\in$(1 ÷ 1024) MB and returns the following sequence of characters: **#7,WM;**

For the unknown function and/or in the case of the other error, all these functions return the following sequence of characters: **#7,?;**

A.8. FUNCTION #9 - write-in the data file into the internal flash-disc

#9 function enables the user to write-in the data file into the internal Flash-disc memory. The data file formats are given in Appendix B.

#9 function formats are defined as follows:

#4,2,FILE_LENGTH,DATA the setup file

where:

FILE_LENGTH	length of the file in bytes,
DATA	binary content of the file.

A.9. Control setting codes

The control setting codes used in the SVAN 955 instrument (the internal software revision 6.03 / 6.03.1) are given in the table below.

Table A.1. Control setting codes

Group name	Group code	Code description
Unit type	**U**	U955 (read only)
Serial number	**N**	Nxxxx (read only)
LEVEL METER software version	**WL**	WLxxx xxx - revision number (read only)
Software version	**W**	Wyyy yyy - revision number (read only)
Calibration factor	**Q**	Qnnnn nnnn-real number with the value of the calibration factor ∈ (-99.9 ÷ 99.9)
Measurement function	**M**	M1 - Sound Level Meter M4 - Dose Meter
Filter type in profile n	**F**	F1:n **Z** filter for profile n F2:n **A** filter for profile n F3:n **C** filter for profile n
Detector type in profile n	**C**	C0:n - **IMPULSE** detector in profile n C1:n - **FAST** detector in profile n C2:n - **SLOW** detector in profile n
Logger type in profile n	**B**	Bx:n - x - sum of the following flags flags: 1 - logger with **PEAK** values in profile n 2 - logger with **MAX** values in profile n 4 - logger with **MIN** values in profile n 8 - logger with **RMS** values in profile n
Logger step	**d**	dnnn nnn number in milliseconds ∈ (**2**, **5**, **10**, **20**, **50**, **100**, **200**, **500**, **1000**) dnns nn number in seconds ∈ (1 ÷ 60) dnnm nn number in minutes ∈ (1 ÷ 60)
Integration period	**D**	D0 - infinity (measurement finished by pressing the **<STOP>** push-button or remotely - by sending S0 control code) Dnns nn number in seconds Dnnm nn number in minutes Dnnh nn number in hours
Repetition of the measurement cycles (RepCycle)	**K**	K0 - infinity (measurement finished by pressing the **<STOP>** push-button or remotely - by sending S0 control code) ..... Knnnn - nnnn number of repetitions ∈ (1 ÷ 1000)
Detector type in the **LEQ** function	**L**	L0 - **LINEAR** L1 - **EXPONENTIAL**
Measure Triggering mode (TriggerMode)	**m**	m0 - switched off (**OFF**) m1 - **SLOPE +** m2 - **SLOPE –** m3 - **LEVEL +** m4 - **LEVEL –** m5 - **GRAD+**
Source of the measure triggering signal for measurement function M1 (TriggerSource)	**s**	s0 - **RMS(1)** s1 - **EXT. IO**

Measure Triggering level (TriggerLev)	**I**	Innn - nnn level in dB ∈ (24 ÷ 136)
Measure Triggering gradient	**O**	Onnn - nnn gradient in dB/ms ∈ (1 ÷ 100)
Exposure Time	**e**	ennn - nnn time in minutes ∈ (1 ÷ 480)
Criterion Level	**c**	c1 - 80 dB c2 - 84 dB c3 - 85 dB c4 - 90 dB
Threshold Level	**h**	h0 - None h1 - 75 dB h2 - 80 dB h3 - 85 dB h4 - 90 dB
Exchange Rate	**x**	x2 - 2 dB x3 - 3 dB x4 - 4 dB x5 - 5 dB
Logger	**T**	T0 - switched off (**[ ]**) T1 - switched on (**[√]**)
Delay in the start of measurement	**Y**	Ynn nn delay given in seconds ∈ (0 ÷ 59)
State of the instrument (Stop or Start)	**S**	S0 - **STOP** S1 - **START**
External IO Mode	**Xx**	Xx0 - **ANALOG OUT** Xx1 - **DIGITAL IN** Xx2 - **DIGITAL OUT**
External IO Function	**Xz**	Xz0 - **TRIGGER PULSE** Xz1 - **ALARM PULSE**
External IO Active Level	**Xc**	Xc0 - **LOW** Xc1 - **HIGH**
External IO Source	**Xs**	Xs3 - **PEAK(1)** Xs4 - **SPL(1)** Xs5 - **LEQ(1)**
External IO Alarm Level	**Xn**	Xnxxxx - xxxx alarm level in dB multiplied by 10 ∈ (300 ÷ 1400)
Auto Save	**XA**	XA0 - switched off (**[ ]**) XA1 - switched on (**[√]**)
RAM File	**XR**	XR0 - switched off (**[ ]**) XR1 - switched on (**[√]**)
Save Statistics	**XS**	XS0 - switched off (**[ ]**) XS1 - switched on (**[√]**)
Replace File	**XP**	XP0 - switched off (**[ ]**) XP1 - switched on (**[√]**)
Direct Save	**XD**	XD0 - switched off (**[ ]**) XD1 - switched on (**[√]**)
Logger Triggering mode (TriggerMode)	**XT**	XT0 - switched off (**OFF**) XT1 - **LEVEL +** XT2 - **LEVEL -**
Logger Triggering level (TriggerLev)	**XL**	XLnnn - nnn level in dB ∈ (24 ÷ 136)

Logger Triggering Number of records taken into account before the fulfilment of the triggering condition (TriggerPre)	**XQ**	XQnn - nn number of records saved in the logger before the triggering condition; nn ∈ (0 ÷ 50)
Logger Triggering Number of records taken into account after the fulfilment of the triggering condition (TriggerPost)	**Xq**	Xqnnn - nnn number of records saved in the logger after the fulfilment of the triggering condition; nn ∈ (0 ÷ 200)