

## 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 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,
- #3** read out of the measurement results in the **1/1 OCTAVE** analysis or **1/3 OCTAVE** analysis 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,U102,N1234,WL1.07,W1.11.1,Q0.01:0,Q0.02:1,M4,Z0,F2:1,F3:2,F0:3,F2:4,F3:5,F0:6,f0,C1:1,C0:2,C2:3,C1:4,C0:5,C2:6,B0:1,B3:2,B15:3,B4:4,B9:5,B7:6,b0,d1s,D10s,K5,L0,Y3,XX0,Xx0,Xz0,Xc0,Xs0,Xn1000,XA1,XR0,XS0,XM0,Xm0,Xi0,XP0,XT0,XL100,XQ0,Xq0,Xw1,XC80,S0,T1,e480,c1:1,c1:2,c1:3,h0:1,h0:2,h0:3,x3:1,x3:2,x3:3,m0,s0,l100,O10,o0;

means that:

- the SV 102 is investigated (U102);
- its number is 1234 (N1234);
- the instrument has the **LEVEL METER** software version number 1.05 (WL1.07);
- the **DOSE METER** software version number is 1.11.1 (W1.11.1);
- the calibration factor is equal to 0.01 dB (Q0.01:0) in left channel and calibration factor is equal to 0.02 dB (Q0.02:1) in right channel;
- the **DOSE METER** mode is selected (M4);
- the **SINGLE CHANNEL** mode id selected(Z0);
- the **A** filter is selected in profile 1, left channel (F2:1);
- the **C** filter is selected in profile 2, left channel (F3:2);
- the **Z** filter is chosen in profile 3, left channel (F0:3);
- the **A** filter is selected in profile 1, right channel (F2:4);
- the **C** filter is selected in profile 2, right channel (F3:5);
- the **Z** filter is chosen in profile 3, right channel (F0:6);
- the **Z** filter is selected for **1/1 OCTAVE** analysis (f0)
- the **FAST** detector is selected in profile 1, left channel (C1:1);
- the **IMPULSE** detector is chosen in profile 2, left channel (C0:2);
- the **SLOW** detector is selected in profile 3, left channel (C2:3);
- the **FAST** detector is selected in profile 1, right channel (C1:4);
- the **IMPULSE** detector is chosen in profile 2, right channel (C0:5);
- the **SLOW** detector is selected in profile 3, right channel (C2:6);
- the logger's buffer is not filled by the results from profile 1, left channel (B0:1);
- the **PEAK** and **MAX** values are stored in the files of the logger from profile 2, left channel (B3:2);
- the **PEAK**, **MAX**, **MIN** and **RMS** values are stored in the files of the logger from profile 3, left channel (B15:3);
- the **MIN** values are stored in the files of the logger from profile 1, right channel (B4:4);
- the **PEAK** and **RMS** values are stored in the files of the logger from profile 2, right channel (B9:5);
- the **PEAK**, **MAX** and **MIN** values are stored in the files of the logger from profile 3, right channel (B7:6);
- the results of **1/1 OCTAVE** analysis are not stored in the files of the logger in SLM mode (b0);
- the results are stored in a logger's file every 1 second (d1s);
- the integration period is equal to 10 seconds (D10s);
- the measurement has to be repeated 5 times (K5);
- the linear detector is selected to the **LEQ** calculations (L0);
- the delay of the start of the measurements is equal to 3 seconds (Y3);
- the analogue output is selected in the Ext. I/O socket of the instrument, right channel (XX0);
- the analogue output is selected in the Ext. I/O input/output socket of the instrument, left channel (Xx0);
- in the case of the **DIGITAL OUT** selection, the active function is **TRIG. PULSE**, left channel (Xz0);
- in the case of the **ALARM PULSE** selection the active level is **LOW**, left channel (Xc0);
- the **PEAK(1)** value from the 1<sup>st</sup> profile in left channel is treated as the alarm source (Xs3);

- the alarm level is equal to 100 dB, left channel (Xn1000);
- the **AUTO SAVE** function is switched on (XA1);
- the RAM file is switched off (XR0);
- the statistics are not saved (XS0);
- the saving of Max spectrum is switched off (XM0);
- the saving of Min spectrum is switched off (Xm0);
- the saving of Peak spectrum is switched off (Xi0);
- the file replacement is switched off (XP0);
- the logger triggering mode is switched off (XT0);
- the logger triggering level is set to 100 dB (XL100);
- 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 length of microphone probe is 20 mm (Xw1);
- the threshold level for PEAK C calculation is set to 80 dB (XC80);
- the instrument is in the Stop state (S0);
- the logger is active (T1);
- the exposition time is set to 8 hours (e480);
- the criterion level in profile 1 is chosen as 80 dB (c1:1);
- the criterion level in profile 2 is chosen as 80 dB (c1:2);
- the criterion level in profile 3 is chosen as 80 dB (c1:3);
- the threshold level in profile 1 is None (h0:1);
- the threshold level in profile 2 is None (h0:2);
- the threshold level in profile 3 is None (h0:3);
- the exchange rate in profile 1 is set to 3 (x3:1).
- the exchange rate in profile 2 is set to 3 (x3:2).
- the exchange rate in profile 3 is set to 3 (x3:3).
- the measure triggering mode is switched off (m0);
- the **RMS** result from the first profile, left channel in **SLM** mode is used as the measure triggering signal (s0);
- the measure triggering level is set to 100 dB (l100);
- the gradient in measure trigger is equal to 10 dB/ms (O10)
- the **RMS** result from the first profile, left channel for **1/1 OCTAVE** is used as the measure triggering signal (o0);



**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 results set

1,2,3,4,5,6 – for reading profile results calculated from the formulae:

$p = 3 * \text{ChannelNumber} + \text{ProfileNumber}$

ChannelNumber: 0 – left channel, 1 – right channel

ProfileNumber: 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 results set)

or

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

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

- v** the under-range flag (ccc equals to 0 when the overload did not occur, 2 when the under-range took place during the last measurement period but did not occur in the last second of the measurement and 3 when the under-range 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 under-range flag (ccc equals to 0 when the overload did not occur, 2 when the under-range took place during the last measurement period but did not occur in the last second of the measurement and 3 when the under-range 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<sup>2</sup>h);
- e** the **E\_8h** result (ccc – the value in Pa<sup>2</sup>h);
- 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);
- C** the **PCTC** result (ccc – the counter value);
- c** the **PCTP** result (ccc – the value in %);
- W** the **TWA** result (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 **SLM** mode:

**#2,1,v0,V0,T15,P85.1,M72.8,N62.5,S69.1,R69.1,U80.9,B(1)69.1,I(480)69.1,Y72.0,Z72.2,L(01)73.5,L(10)71.7,L(20)70.8,L(30)70.2,L(40)69.3,L(50)68.3,L(60)67.6,L(70)66.9,L(80)66.2,L(90)64.6;**

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

**#2,1,v0,V0,T29,P90.4,M78.5,N49.7,S59.4,D0,d3,A65.3,R65.8,U80.4,u110.4,E0.00,e0.01,I(480)65.8,J35.8,Y71.3,Z71.2,L(01)77.5,L(10)70.8,L(20)61.4,L(30)57.9,L(40)55.8,L(50)54.6,L(60)53.7,L(70)53.0,L(80)52.3,L(90)51.1,C201,c69;**



**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,T29,P90.4,R65.8,L(01)77.5,L(10)70.8,L(20)61.4,L(30)57.9,L(40)55.8,L(50)54.6,L(60)53.7,L(70)53.0,L(80)52.3,L(90)51.1;**



**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.4. Function #3 - Read-out of the measurement results in 1/1 OCTAVE and 1/3 OCTAVE mode

#3 function enables one to read out the current measurement results in **DOSE & 1/1 OCTAVE, SLM & 1/1 OCTAVE, DOSE & 1/3 OCTAVE and SLM & 1/3 OCTAVE** modes.

#3 function format is defined as follows:

#3;

The device responds, sending the last measured spectrum (when the instrument is in STOP state) or currently measured spectrum (when the instrument is in RUN state) in the following format:

#3;<Status Byte> <LSB of the transmission counter> <MSB of the transmission counter> <left channel data byte> (...) <left channel data byte> <right channel data byte> (...) <right channel data byte>

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

D7	D6	D5	D4	D3	D2	D1	D0
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where:

- D7= 0 means that "overload does not happen" in right channel,  
= 1 means that "overload appeared" in right channel,
- D6= 0 means that "overload does not happen" in left channel,  
= 1 means that "overload appeared" in left channel,
- D5= 0 means that "spectrum is not averaged",  
= 1 means that "spectrum is averaged",
- D4= 0 the instantaneous current result (RUN State),  
= 1 the final result (STOP State),
- D3= 1 results in **1/3 OCTAVE** mode,
- D2= 1 results in **1/1 OCTAVE** mode,
- D0 to D1 reserved bits.



**Notice:** The measurement result is coded in binary form as  $dB \cdot 10$  (e.g. 34.5 dB is sent as binary number 345).

#### 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:

<b>#4,0,\;</b>	the file containing the catalogue,
<b>#4,0,?;</b>	the count of the files,
<b>#4,0,index,count;</b>	the part of the file containing the catalogue,
where:	
<b>index</b>	- first record,
<b>count</b>	- number of records in the catalogue.
<b>#4,1,fname;</b>	the file containing the measurement results,
<b>#4,1,fname,?;</b>	file size,
<b>#4,1,fname,offset,length;</b>	the part of the file containing the measurement results,
<b>#4,1&lt;address,length;</b>	the part of the file containing the measurement results,
where:	
<b>fname</b>	- name containing not more than eight characters,
<b>offset</b>	- offset from the beginning of the file,
<b>length</b>	- number of bytes to read,
<b>address</b>	- absolute internal address,
<b>#4,2,fname;</b>	the file containing the logger results,
<b>#4,2,fname,?;</b>	file size,
<b>#4,2,fname,offset,length;</b>	the part of file containing the logger results,
where:	
<b>fname</b>	- name containing not more than eight characters
<b>offset</b>	- offset from the beginning of the file,
<b>length</b>	- number of bytes to read,
<b>#4,3;</b>	the RAM file,
<b>#4,3,?;</b>	size of RAM file,
<b>#4,3,offset,length;</b>	the part of RAM file,
where:	
<b>offset</b>	- offset from the beginning of the RAM file,
<b>length</b>	- number of bytes to read,



**Notice:** The "I" 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 number of the results set

1,2,3,4,5,6 – for reading profile results calculated from the formulae:

$p = 3 * \text{ChannelNumber} + \text{ProfileNumber}$

ChannelNumber: 0 – left channel, 1 – right channel

ProfileNumber: 1, 2 or 3

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
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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.



to zero.

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

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

#7 function 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,dddd**; (dddd - 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,dddd**; (dddd - 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;**

Reserved.

**#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 from the usb interface – the function returns (-1).

**#7,BV;**

This function returns active power source voltage in 10 mV.

**#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;**

Reserved.

**#7,SL;**

This function returns all statistical levels in the format **#7,SL,s11,s12,s13,s14,s15,s16,s17,s18,s19,s110;**

**#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: **GE** (German), **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;**

Reserved.

**#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;**

Reserved.

**#7,KL,x;**

This function locks (  $x = 1$  ) or unlocks (  $x = 0$  ) keyboard and returns the following sequence of characters: **#7,KL;**

**#7,KL;**

This function returns the states of keyboard lock in the format **#7,KL,x;**

**#7,FL,x;**

This function locks (  $x = 1$  ) or unlocks (  $x = 0$  ) access to files and results and returns the following sequence of characters: **#7,KL;**

**#7,FL;**

This function returns the states of access to files and results lock in the format **#7,FL,x;**

**#7,PI;**

This function returns PIC version.



**Notice:** #4 commands unlocks access to files and results.

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:

**#9,FILE\_TYPE,FILE\_LENGTH,DATA**

where:

**FILE\_TYPE**                    type of the file  
    1 - result file,  
    2 - setup file,  
**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 SV 102 instrument (the internal software revision 1.07 / 1.11.1) are given in the table below.

**Table A.1. Control setting codes**

Group name	Group code	Code description
Unit type	<b>U</b>	U102 (read only)
Serial number	<b>N</b>	Nxxxx (read only)
<b>LEVEL METER</b> software version	<b>WL</b>	WLxxx xxx - revision number (read only)
<b>DOSE METER</b> software version	<b>W</b>	Wyyy yyy - revision number (read only)
Calibration factor	<b>Q</b>	Qnnnn:c nnnn - real number with the value of the calibration factor $\in (-99.9 \div 99.9)$ c: 0 - left channel, 1 - right channel
Measurement function	<b>M</b>	M1 - <b>SLM</b> M2 - <b>SLM &amp; 1/1 OCTAVE</b> analyser M3 - <b>DOSE &amp; 1/1 OCTAVE</b> analyser M4 - <b>DOSE METER</b> M5 - <b>SLM &amp; 1/3 OCTAVE</b> analyser M6 - <b>DOSE &amp; 1/3 OCTAVE</b> analyser
Channel Mode	<b>Z</b>	Z0 - <b>SINGLE CHANNEL</b> Z1 - <b>DUAL CHANNEL</b>

Filter type in profile n	<b>F</b>	<p>F0:n - <b>Z</b> filter for profile n  F2:n - <b>A</b> filter for profile n  F3:n - <b>C</b> filter for profile n</p> <p>n: 1,2,3,4,5,6 – calculated from the formulae:  <math>3 * ChannelNumber + ProfileNumber</math>  ChannelNumber:  0 - left channel, 1- right channel  ProfileNumber: 1, 2 or 3</p> <p>(read only for <b>DOSE &amp; 1/1 OCTAVE</b> analyser,  <b>DOSE &amp; 1/3 OCTAVE</b> analyser and <b>DOSE METER</b>  mode)</p>
Detector type in profile n	<b>C</b>	<p>C0:n - <b>IMPULSE</b> detector in profile n  C1:n - <b>FAST</b> detector in profile n  C2:n - <b>SLOW</b> detector in profile n</p> <p>n: 1,2,3,4,5,6 – calculated from the formulae:  <math>3 * ChannelNumber + ProfileNumber</math>  ChannelNumber:  0 - left channel, 1- right channel  ProfileNumber: 1, 2 or 3</p>
Filter type in <b>1/1 OCTAVE</b> analysis and <b>1/3 OCTAVE</b> analysis	<b>f</b>	<p>f0 - <b>Z</b> filter  f2 - <b>A</b> filter  f3 - <b>C</b> filter</p>
Logger type in profile n	<b>B</b>	<p>Bx:n - x - sum of the following flags  flags:  1:n - logger with <b>PEAK</b> values in profile n  2:n - logger with <b>MAX</b> values in profile n  4:n - logger with <b>MIN</b> values in profile n  8:n - logger with <b>RMS</b> values in profile n</p> <p>n: 1,2,3,4,5,6 – calculated from the formulae:  <math>3 * ChannelNumber + ProfileNumber</math>  ChannelNumber:  0 - left channel, 1- right channel  ProfileNumber: 1, 2 or 3</p>
Storing the results of <b>1/1 OCTAVE</b> analysis and <b>1/3 OCTAVE</b> analysis in logger's file	<b>b</b>	<p>bx - x - sum of the following flags  flags:  1 - logger with <b>PEAK</b> values  8 - logger with <b>RMS</b> values</p>
Logger step	<b>d</b>	<p>dnns - nn number in seconds <math>\in (1 \div 60)</math>  dnm - nn number in minutes <math>\in (1 \div 60)</math></p>
Integration period	<b>D</b>	<p>D0 - infinity (measurement finished by pressing the <b>Stop</b> or remotely - by sending S0 control code)  Dnns - nn number in seconds  Dnm - nn number in minutes  Dnh - nn number in hours</p>
Repetition of the measurement cycles (RepCycle)	<b>K</b>	<p>K0 - infinity (measurement finished by pressing the <b>Stop</b> or remotely - by sending S0 control code)  .....  Knnn - nnnn number of repetitions <math>\in (1 \div 1000)</math></p>

Detector type in the <b>LEQ</b> function	<b>L</b>	L0 - <b>LINEAR</b> L1 - <b>EXPONENTIAL</b>
Measure Triggering mode (TriggerMode)	<b>m</b>	m0 - switched off ( <b>OFF</b> ) m1 - <b>SLOPE +</b> m2 - <b>SLOPE –</b> m3 - <b>LEVEL +</b> m4 - <b>LEVEL –</b> m5 - <b>GRAD+</b>
Source of the measure triggering signal for measurement functions: M1, M4 (TriggerSource)	<b>s</b>	s0 - <b>RMS</b> result from the 1 <sup>st</sup> profile, left channel s1 - <b>EXT. IO</b> s2 - <b>RMS</b> result from the 1 <sup>st</sup> profile, right channel s3 - <b>RMS</b> result from the 1 <sup>st</sup> profile, left or right channel
Source of the measure triggering signal for measurement function M2, M3, M5, M6 (TriggerOctSource)	<b>o</b>	o0 - <b>RMS</b> result from the 1 <sup>st</sup> profile, left channel o1 - <b>EXT. IO</b> o2 - <b>RMS</b> result from the 1 <sup>st</sup> profile, right channel o3 - <b>RMS</b> result from the 1 <sup>st</sup> profile, left or right channel
Measure Triggering level (TriggerLev)	<b>I</b>	Innn - nnn level in dB $\in (24 \div 136)$
Measure Triggering gradient	<b>O</b>	Onnn - nnn gradient in dB/ms $\in (1 \div 100)$
Exposure Time	<b>e</b>	ennn - nnn time in minutes $\in (1 \div 720)$
Criterion Level	<b>c</b>	c1:p - 80 dB c2:p - 84 dB c3:p - 85 dB c4:p - 90 dB c5:p - 60 dB c6:p - 65 dB c7:p - 70 dB c8:p - 75 dB p: 1,2,3 - profile number
Threshold Level	<b>h</b>	h0:p - None h1:p - 70 dB h2:p - 75 dB h3:p - 80 dB h4:p - 85 dB h5:p - 90 dB h6:p - 60 dB h7:p - 65 dB p: 1,2,3 - profile number
Exchange Rate	<b>x</b>	x2:p - 2 x3:p - 3 x4:p - 4 x5:p - 5 p: 1,2,3 - profile number

Logger	<b>T</b>	T0 - switched off ([ ]) T1 - switched on ([√])
Delay in the start of measurement	<b>Y</b>	Ynn - nn delay given in seconds $\in (0 \div 59)$ and $(60 \div 3600)$ with step 60s
State of the instrument (Stop or Start)	<b>S</b>	S0 - <b>STOP</b> S1 - <b>START</b>
External IO Mode (left channel)	<b>Xx</b>	Xx0 - <b>ANALOG OUT</b> Xx2 - <b>DIGITAL OUT</b>
External IO Function (left channel)	<b>Xz</b>	Xz0 - <b>TRIGGER PULSE</b> Xz1 - <b>ALARM PULSE</b>
External IO Active Level (left channel)	<b>Xc</b>	Xc0 - <b>LOW</b> Xc1 - <b>HIGH</b>
External IO Source (left channel)	<b>Xs</b>	Xs3 - <b>PEAK(1)</b> Xs4 - <b>SPL(1)</b> Xs5 - <b>LEQ(1)</b>
External IO Alarm Level (left channel)	<b>Xn</b>	Xnxxxx - xxxx alarm level in dB multiplied by 10 $\in (300 \div 1400)$
External IO Mode (right channel)	<b>XX</b>	XX0 - <b>ANALOG OUT</b> XX1 - <b>DIGITAL IN</b>
Auto Save	<b>XA</b>	XA0 - switched off ([ ]) XA1 - switched on ([√])
RAM File	<b>XR</b>	XR0 - switched off ([ ]) XR1 - switched on ([√])
Save Statistics	<b>XS</b>	XS0 - switched off ([ ]) XS1 - switched on ([√])
Save Max Spectrum	<b>XM</b>	XM0 - switched off ([ ]) XM1 - switched on ([√])
Save Min Spectrum	<b>Xm</b>	Xm0 - switched off ([ ]) Xm1 - switched on ([√])
Save Peak Spectrum	<b>Xi</b>	Xi0 - switched off ([ ]) Xi1 - switched on ([√])
Replace File	<b>XP</b>	XP0 - switched off ([ ]) XP1 - switched on ([√])
Logger Triggering mode (TriggerMode)	<b>XT</b>	XT0 - switched off (OFF) XT1 - <b>LEVEL +</b> XT2 - <b>LEVEL -</b>
Logger Triggering level (TriggerLev)	<b>XL</b>	XLnnn - nnn level in dB $\in (24 \div 136)$
Logger Triggering - Number of records taken into account before the fulfilment of the triggering condition (TriggerPre)	<b>XQ</b>	XQnn - nn number of records saved in the logger before the triggering condition; $nn \in (0 \div 50)$

Logger Triggering - Number of records taken into account after the fulfilment of the triggering condition (TriggerPost)	<b>Xq</b>	Xqnnn - nnn number of records saved in the logger after the fulfilment of the triggering condition; nn ∈ (0 ÷ 200)
Microphone Probe	<b>Xw</b>	Xw0 - probe 15 mm Xw1 - probe 20 mm Xw2 - probe 25 mm
Threshold level for PEAK C calculation	<b>XC</b>	XCnnn - nnn level in dB ∈ (70 ÷ 140)