Manual Decibel Ultra (pro)

All values are in dB (A)

Extremely Loud :
· 120 threshold of pain , taking off
       single-engine propeller aircraft
· 110 Walkman loud rock concert
· 105 disco music, concert ,
        Jackhammer

· 100 motorcycle , circular saw
· 95 heavy traffic
· 90 car horn , snoring

Very loud :
· 85 (+5 dBA noise protection when not otherwise possible) = HEARING PROTECTION REQUIRED IN BUSINESS !
· 85 Middle Road
· 80 lawn mowers
· 75 Bicycle Bell (minimum volume)
· 70 vacuum cleaner, household and office
        noise, Cubicle
· 65 increased risk of cardiovascular -
        Diseases to heart attack !
· 60 STRESSGREN ZE !
        Television in room volume ,
        Dishwasher, speaking person .

moderate:
· Volume 50 rooms , quiet conversation ,
        quiet residential street
· 40 very quiet conversation , very quiet
        Rooms , fans of copiers &
        computers

quiet:
· 30 whisper , quiet library ,
        Background noise in the house

Sounds louder than 80 dB are considered potentially dangerous!

Warning of hazardous noise :
- You need to talk louder.

- You do not really understand sentences even though the person is only a meter away.
- After leaving a field of noise , you hear everything muffled or dull.

In the worst case you have pain, ringing or beeping in the ear (tinnitus) , please look for a doctor IMMEDIATELY ! The only way to First Aid treatment . Otherwise there is limited hearing loss or tinnitus of the frequency spectrum .

Instructions - The buttons :

(Play / Pause) Starts and pauses a measurement process.

(Stop) Stop a measurement process. On subsequent pressure on (Play) for a new measurement, all values are zero.

(dB ABC) Choice of frequency weighting, between: A, B , C, D.

(Fast Slow Imp) choice of term evaluation between Fast, Slow, Impulse.

(+ / -) Ascending and descending to adjust the offset.

(r) Reset: All readings are zeroed readings recording (rec) , differential measurements (a) is turned off.

(t) triggers, counter measurements with a settable threshold (dB value Lp or LCPeak , see Setup) When the measured value recording only single values are recorded , which are above the threshold. The trigger can not be turned on or off when just running a measured value recording .

(rec) record , start a recording readings . When is selected in Setup "Rec long form" , the recording of the summary can also 28800 readings records, here is a possible combination with the trigger . Thus, one measurement point (LP & LCPeak) recorded when the trigger level has been exceeded. In the setup "Rec email short " is selected, the result is a summary of the main values. The result can be sent by e- mail . See below for Setup "Rec email short / long" . While recording is active , it can be ended with record button (stop) or by repeated touch of (rec) . (r) or reset (s) from the recording setup will fail .

(s) Setup menu , more settings available, see below for setup. Stops a

currently running measurement point records when activated.

(a) Automatic differential measurement is valid only for Lp, Lmin , Lmax , and LCPeak LCPeak max. Will operate with the buttons (s) reset , (rec) record , (+ / -) offset or stop by again pressing the button (a).

Instructions - Setup:

Internal Mic : button becomes active only when the external input Choice: line-in , headset and MicW i436 possible.

Ext mode on / off: There will not be displayed SEL / Leqt / LAFTeq / Ln as well as the frequency.

Rec email short / long: In addition to the summary are generated by "long" single values of the sound pressure level Lp and LCPeak with Time .

EMail comma / spaces / tap stop: the individual values to "Rec email long" can be separated by a comma, space or tab stop . Only active when the button above "Rec email short / long" is long .

Email Loc. on / off: The location of the data acquisition can be stated in the email .

EQ draw full / line: graphic equalizer is filled or line drawing.

EQ gfx soft 2x / 3x / 4x: oversample , just calm the graphic equalizer display .

Trigger Lp / LCpeak: choice whether the trigger on Lp or LCPeak responding.

Panel 1/ 2 : Choice of Alternative panels for analog display .

(For professionals) choice of the window function between : Rectangular , flat-top , cosine , Bartlett, Blackman , Hamming, Hanning, Blackman -Harris , Blackman nuttall . Default is the cosine window function.

Reset: Resets the setup functions to their default values .

Instructions - The values are:

Decibels (dB) : The unit of sound level L. often shown on television as a measured value is only specified as 49 dB . This is wrong! Only if the value is compared to the relation or it's right. Apples are also not sold with 49 money. 49 what? Pears, EUR , Cent ? Therefore, the correct statement , for example, is 49 dB (A) - ie dBA. It is better if time evaluation will specify . For example: 49 dB (AF) or LAF is equal to 49 dB.

LAF : sound level L with A frequency weighting and F -term evaluation , according to the frequency weighting and time weighting : LAF , LAS, LAI , LCA, LCS , LCI .... More about the frequency weighting and time weighting below .

Leq : Equivalent continuous sound pressure level. Displayed as LAeqt , LBeqt , LCeqt , LDeqt or LZeqt , depending on the frequency rating is the average during the measurement period (t) measured values , corresponding to the sound energy occurred . Does not show you the exposure that you were exposed !

SEL (Sound Exposure Level) Very important and meaningful ! Displayed as a unit LAE , LBE LCE LDE or LZE , depending on the frequency rating , shows the exposure of the sound energy. A single level of 90 dBA for a second will show you how Leq 90 dB , after two seconds 93 dBA.

LAFTeq : clock maximum sound level , cycle maximum (. Still common and defined in Germany by DIN 45641) a weighted with (F) sound level is s held a " clock " of 3 s or 5, as would be the level during the entire cycle time present . Ultra Decibel measures by 5 seconds.

In : Perzentiler exceedance levels . Displayed as LAn , LBn , LCn , LDn . The value n indicates the percentage value of the measurement time in which the level was statistically exceeded. This is calculated from the time of review "fast " . For example LA10 (LAF10) , the sound level was exceeded in 10% of the measurement time , measured with 'A' Frequency weighting and statistically calculated. In some countries, applies LAF90 LAF95 or as a measure of the background noise level.

Peak: The peak value of sound pressure level. This is at least 3 dB than the maximum value. See Crest Factor !

LCpeak : peak sound pressure level peak with the C frequency weighting , which is equivalent belonging to high sound pressure levels . Measuring time: less than 50 microseconds. (Keyword: EC Directive " noise " and the BGV B 3 / UVV " noise " "Peak - Höhstwert " , in Accident Prevention Regulation noise).

Crest factor (crest factor) or peak-to- Pverage Ratio (PAR) is the ratio of peak / rms . For a sine wave , the rms value is calculated for the ratio of the peak amplitude of root two . Corresponds to 0.707 times the peak amplitude . The crest factor is 1/0.707 = 1.414 or $20\log10$ (1.41) = 3 dB . In a square-wave signal , the crest factor is = 1, since the signal peak is = effective . When this root is three triangular signals = 1.73 . Infinity at nail pulses against .

Instructions - Background
frequencies are evaluated differently:

A: The standard evaluation of the audio frequency range , which is the frequency response of the human ear the next . Based on the 20 - 40 Phon curve of equal volume level. Is most commonly used .

B: It is used in industry and metrology. Based on the 50 - 70 Phon curve of equal volume level.

C: Low frequencies rating are less attenuated, compared with the A-weighting low frequencies. Is currently used in Germany for aircraft noise. Based on the 80-90 phon curve of equal volume level.

D: This frequency rating has been previously used in Germany aircraft noise. The annoying high-pitched frequencies of airplane turbines are rated at this frequency gets good rating . Unfortunately, this frequency evaluation is only in aircraft and foreign aircraft noise on application .

Z : The frequency weighting Z (Zero) , also known as L (linear) denotes not assessed the frequency response , the frequency response is flat (Without the linearity of the microphone to be considered) .

Integration times:

S (Slow): Time Review - A defined term evaluation with an integration time of 1000 milliseconds for the rise and the fall .
Small peaks are barely visible , that result is easy to read.

F (fast) Time Review - A defined term evaluation with an integration time of 125 milliseconds for the rise and the fall . Small peaks already visible. F (Fast) is used today at most and consistent with the time dependence of the Human auditory match best.

I (impuls) Time Review - A defined term evaluation with an integration time of 35 milliseconds and 1500 milliseconds for the increase of the waste. Peaks clearly visible.

The term evaluations originated in the time of the analog pointer deflection .

Tips :
+ Tap once on the equalizer for a color change
+ Tap twice for the next equalizer mode
+ Tap three times for the history mode

First aid:

- The device must be configured for email and must be able to send emails if you want to send the readings (rec) by email.

Decibel Ultra pro
- Decibel Ultra pro needs access to the device- microphone, please let this happen!
-> This setting: Settings -> Privacy -> Microphone -> "dBUltraPro" turn on.

- The location access must granted if you want the location of data acquisition.
-> This setting: Settings -> Privacy -> Location Services (On) -> " dBUltraPro" turn on.

Decibel Ultra
- Decibel Ultra needs access to the device- microphone, please let this happen!
-> This setting: Settings -> Privacy -> Microphone -> "Decibel Ultra" turn on.

- The location access must granted if you want the location of data acquisition.
-> This setting: Settings -> Privacy -> Location Services (On) -> "Decibel Ultra" turn on.