DEWETRON

OXYGEN TRAINING
> SOUND LEVEL

GENERAL

DEWETRON

OXYGEN's sound level option can be used for determining the time dependent sound pressure level according to IEC 61672 and IEC 651.

Features:

> Frequency weighting: A-, B-, C-, D- or Z weighting
> Time weighting: fast (125 ms), slow (1000 ms) or impulse (35 ms / 1500 ms)
> Reference level p_0 available for airborne sound (20 µPa) or water (1 µPa)
> Energy equivalent sound pressure level $L(A)_{eq}$
> Time dependent sound pressure level
> Minimum and maximum occurring sound pressure level
> Statistical (percentile) sound pressure Levels
> Above mentioned values can be determined for the entire measurement or block-wise per definable time interval
> Raw frequency weighted sound pressure in original unit [Pa]
> Noise exposure level $L(A)_{Ex,8h}$ and Noise Dose D

Benefits:

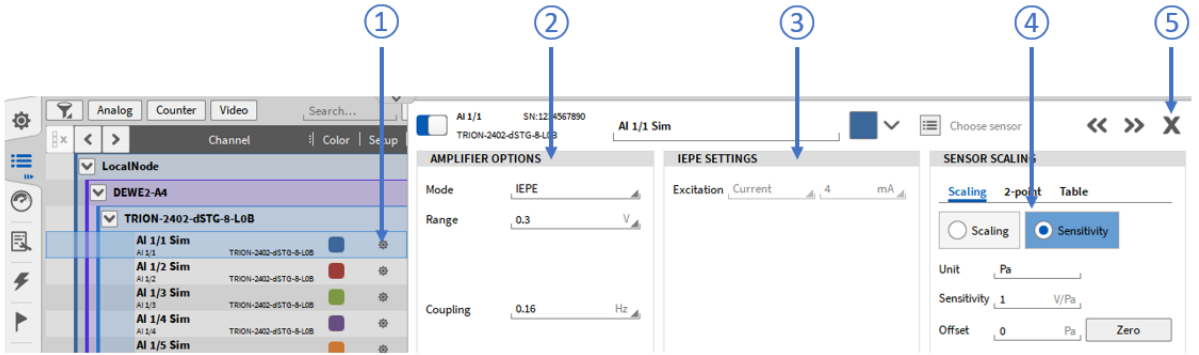
> Statistical sound pressure level analysis
> (Long term) sound monitoring
> Sensor sensitivity can be entered manually or determined with calibrator
> Sound pressure level determination for airborne sound and water
> Interval-wise logged sound pressure levels

Applications:

> Analyzing the acoustical emission of machines
> Determining the spatial and statistical sound pressure level distribution in buildings
> Long term noise monitoring

CHANNEL SETUP

①	Connect the microphones to the hardware and open the channel setup
②	Select the proper amplifier options for your sensor (typically IEPE mode)
③	Set up the correct excitation current
④	To enter the sensitivity of the sensor, select Sensitivity, enter the correct unit [Pa] and enter the correct sensitivity
⑤	Close the Channel Setup when finished



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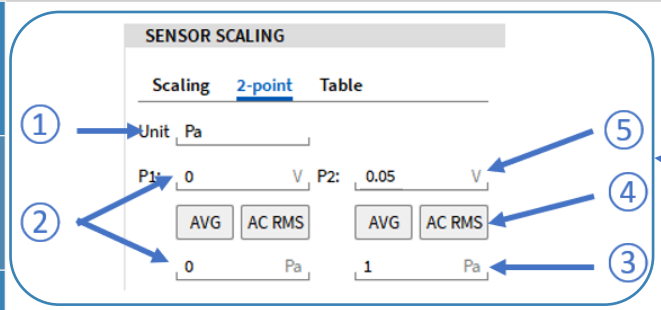
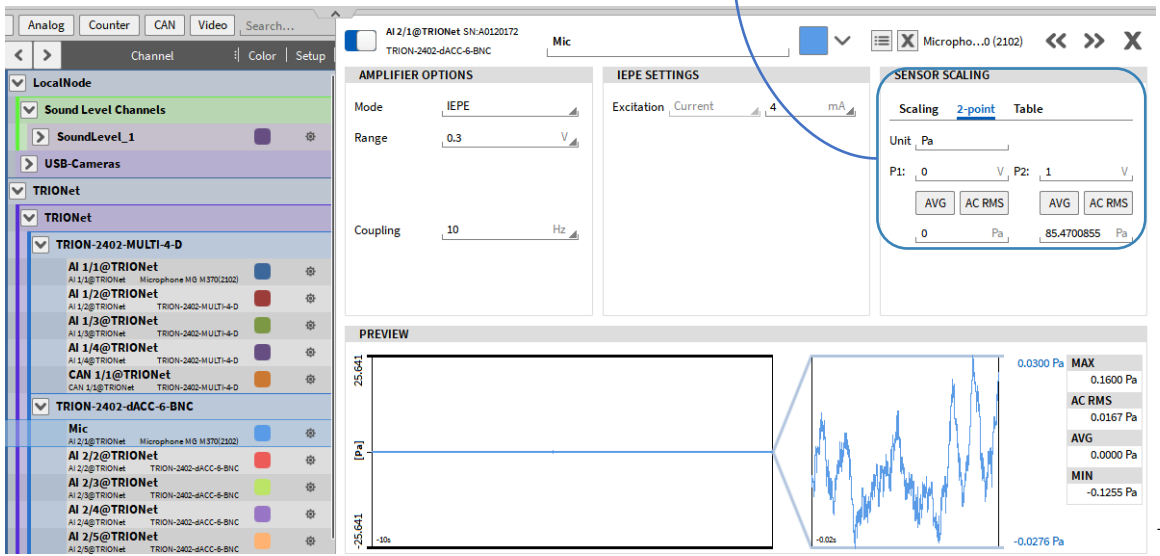
CALIBRATION

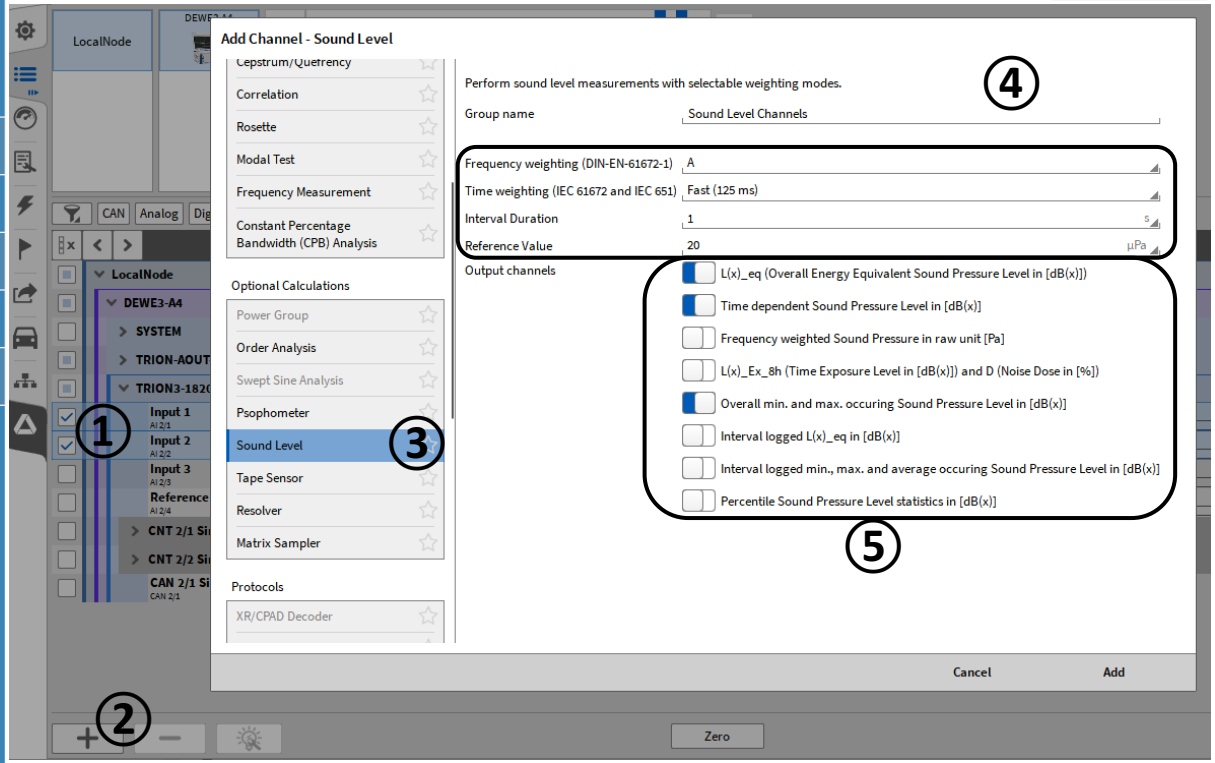
①	If a calibrator is used for sensitivity determination, go to the 2-point sensor scaling tab and enter the unit [Pa]
②	Let the settings 0 V and 0 Pa untouched. This means that 0 V measurement signal equals 0 Pa.
③	Enter the reference RMS-sound pressure of the calibrator. This is 1 Pa_{RMS} for a 94 dB calibrator and 10 Pa_{RMS} for a 114 dB calibrator
④	When the calibrator signal is stable, press the AC RMS button. The AC RMS level of the calibrator will be averaged for the last 1 second
⑤	The sensitivity will be calculated automatically





CREATING A SOUND LEVEL DETERMINATION

①	Select the input channels for which a sound level shall be determined by selecting their checkboxes in the Channel List
②	Press the + button
③	Select the *Sound Level* section
④	Perform the required settings
⑤	Select the desired output channels
⑥	Press the *Add* button



CREATING A SOUND LEVEL DETERMINATION

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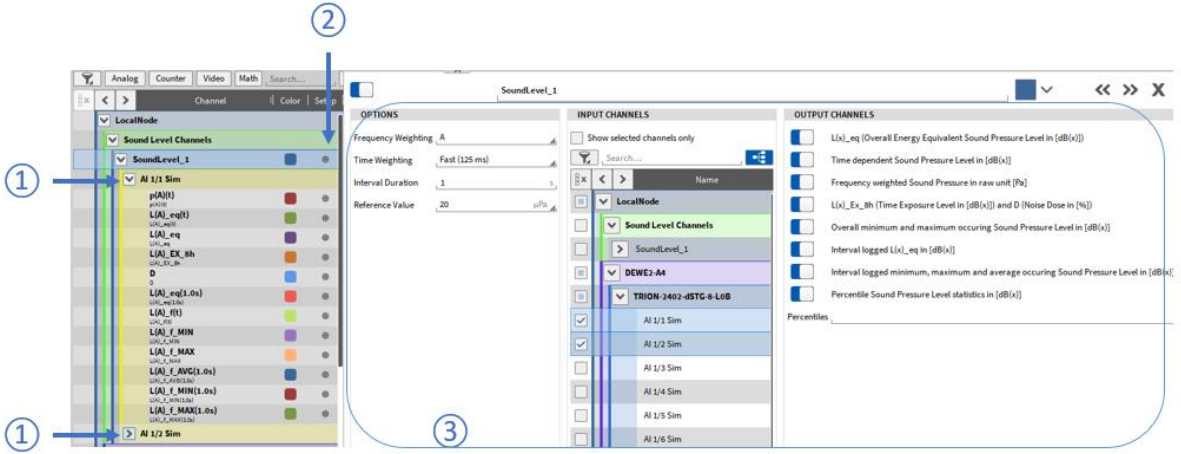
①	A new sound level determination will be added to the Channel List. A separate section with output channels per input channel will be created and can be expanded by pressing the Arrow button
②	The settings can be edited by pressing the *Gear* button of the *Sound Level group*
③	The options, input channels and output channels can be edited afterwards if required



- Frequency: A-weighting, B-, C-, D and Z-weighting according to IEC 61672 can be selected for the sound level determination.

- Time weighting: Fast (125 ms), slow (1000 ms) and impulse (rising 35 ms / falling 1500 ms) can be selected for the sound level determination. Fast and slow time weighting are compliant with IEC 61672 and impulse weighting complies with IEC 651.

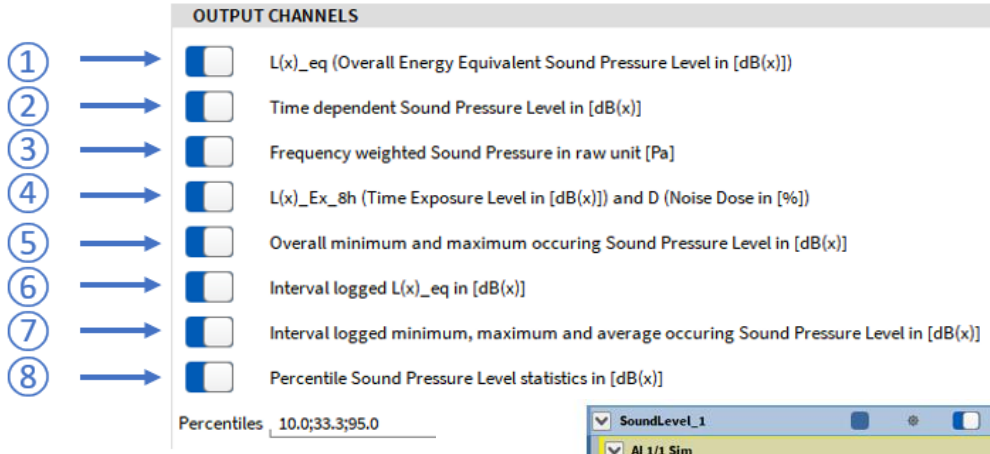
- It is possible to update certain output signals interval wise. The time interval can be selected from 0.1 s to 10 s.

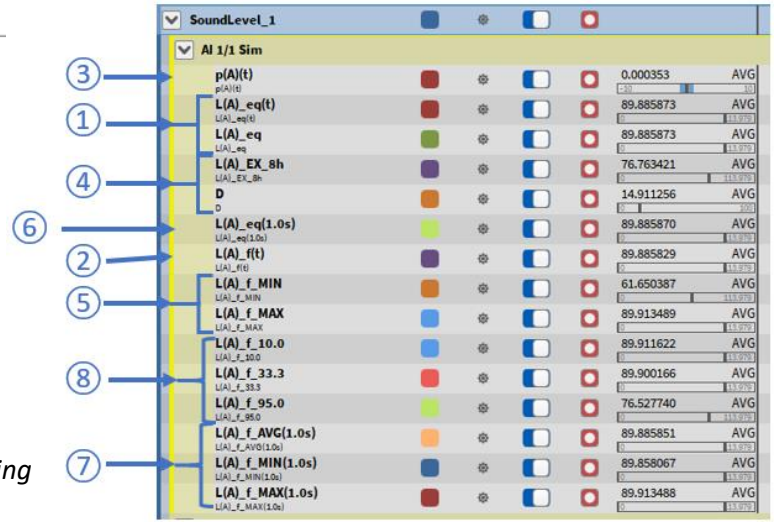
- It is possible to select the reference sound pressure level p_0 for airborne sound which is 20 µPa or the reference sound pressure level p_0 for water which is 1 µPa.

AVAILABLE OUTPUT CHANNELS

DEWETRON

①	Outputs the energy equivalent sound pressure level $L(x)_{eq}$ for the entire measurement
②	Outputs the time dependent frequency and time weighted sound pressure level $L(x)_{\tau}$
③	Outputs the frequency weighted raw signal p(x)(t)
④	Outputs the daily noise exposure level $L(x)_{Ex,8h}$ for and the equivalent noise dose D for a reference level of 85 dB
⑤	Outputs the minimum $L(x)_{\tau,MIN}$ and maximum $L(x)_{\tau,MAX}$ occurring sound pressure level during the measurement as single value
⑥	Outputs the $L(x)_{eq}$ calculated for the specified time interval
⑦	Outputs the $L(x)_{\tau,MIN}$ and $L(x)_{\tau,MAX}$ and $L(x)_{\tau,AVG}$ calculated for time the specified time interval
⑧	Outputs the sound pressure level(s) that are exceeded for a certain percentage of the measurement time





X denotes the selected frequency weighting (A, B, C, D, Z)

τ denotes the selected time weighting (fast, slow, impulse)

AUDIO REPLAY

①	It‘s possible to replay channels via the default PC sound card by using the Audio Player Instrument
②	Possibility to Mute channels
③	Possibility to set the volume
④	Possbility to change the left-right Balance

Maximum number of replay channels per instrument is 2.
Recommended sample rate of replay channels is from 1 kHz to 200 kHz

Replay is available in LIVE, REC and PLAY mode.

In LIVE and REC mode, the actual data is replayed.

In PLAY mode, replay is snapped to Orange cursor (⑤).