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OXYGEN TRAINING
> SWEPT SINE ANALYSIS

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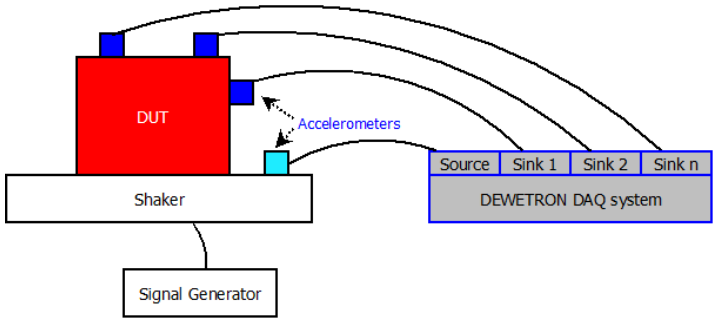
GENERAL PURPOSE

Analysis Tool for Shaker Applications with Swept-Sine Excitation

Calculates Amplitude and Phase Values of over 100 Channels simultaneously

Analyze Frequency Response from 1 Hz up to 20 kHz



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CREATING A SWEPT SINE ANALYSIS

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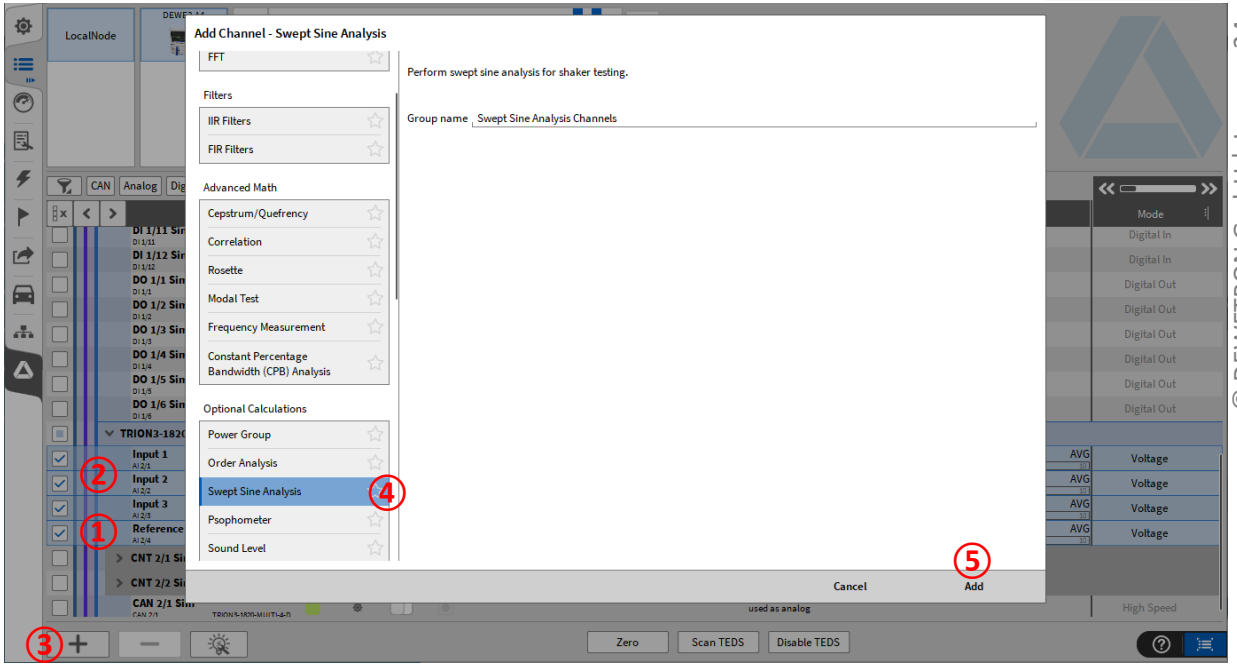
①	Open the channel list and select the checkbox of the reference channel
②	Select the checkbox(es) of the input channel(s)
③	Press the *+* button
④	Select *Swept Sine Analysis*
⑤	Press the *Add* button



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EDITING THE SWEPT SINE ANALYSIS SETTINGS

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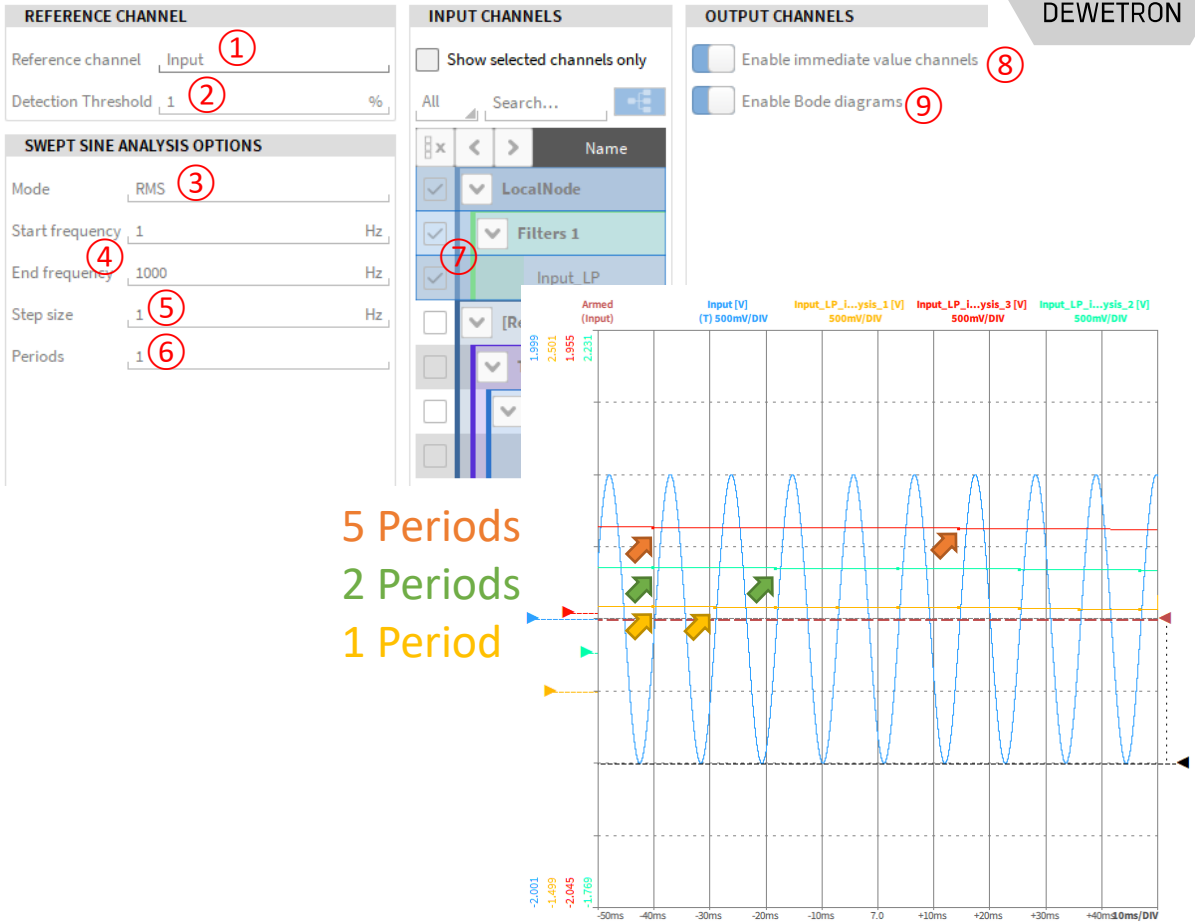
①	Reference Channel (shaker output) can be changed here
②	Threshold in percentage of channel input range
③	Frequency response either as RMS or Zero-Peak Amplitude
④	Start and stop frequency selection for Swept Sine Analysis
⑤	Step size for Swept Sine Analysis
⑥	Number of periods of the reference signal after which the calculation is updated
⑦	Input channels for swept sine analysis (several selectable)
⑧	Optional output of amplitude and phase as time domain channels
⑨	Optional output of bode diagram (frequency domain channels)



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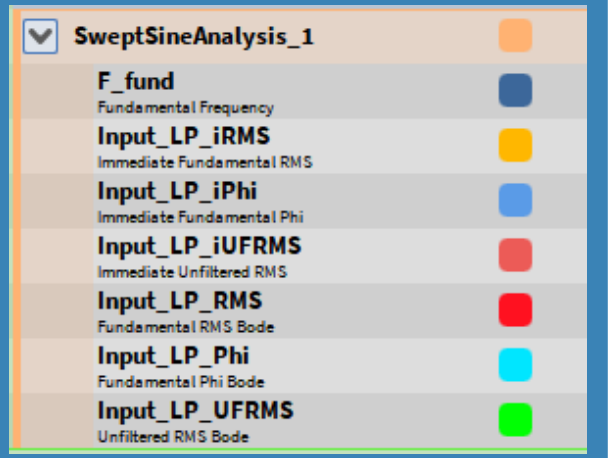
OUTPUT CHANNELS



- Frequency domain channels:
  - Ch_RMS: Fundamental RMS frequency response
  - Ch_Phi: Fundamental Phi frequency response
  - Ch_UFRMS: Unfiltered RMS frequency response
- Time domain channels:
  - F_fund: Fundamental frequency
  - Ch_iRMS: Immediate fundamental RMS
  - Ch_Phi: Immediate fundamental Phi
  - Ch_iUFRMS: Immediate unfiltered RMS
- Zero-peak instead of RMS selection possible

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MISC

- Maximum frequency span: 1 Hz – 20 kHz
- Recommendation: Sample Rate : 20 * f_max
- Resolution 1 – 100 Hz
- Max 10 periods for averaging
- If the sweep does not exactly hit exactly one frequency bin contained in the array, data for the certain frequency bin is filled up by linear interpolation of the two narrowed frequency bins
- If one bin is hit several times, the max value will be stored

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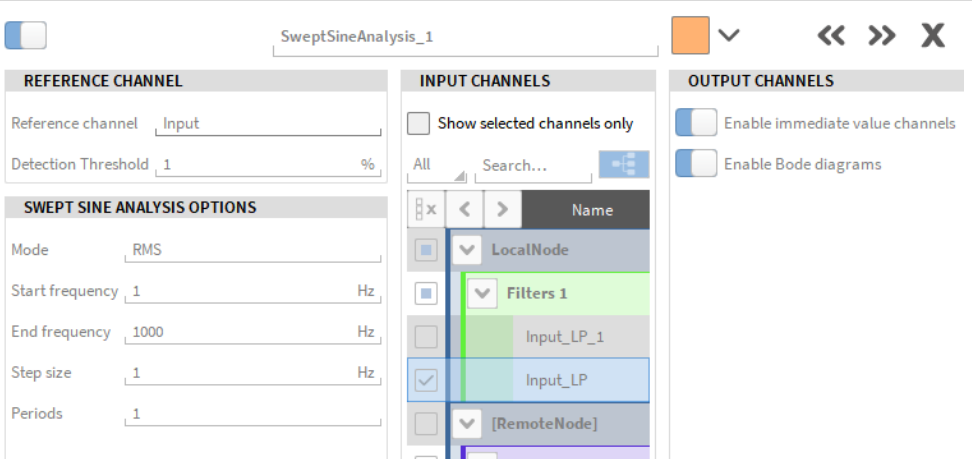
EXERCISE

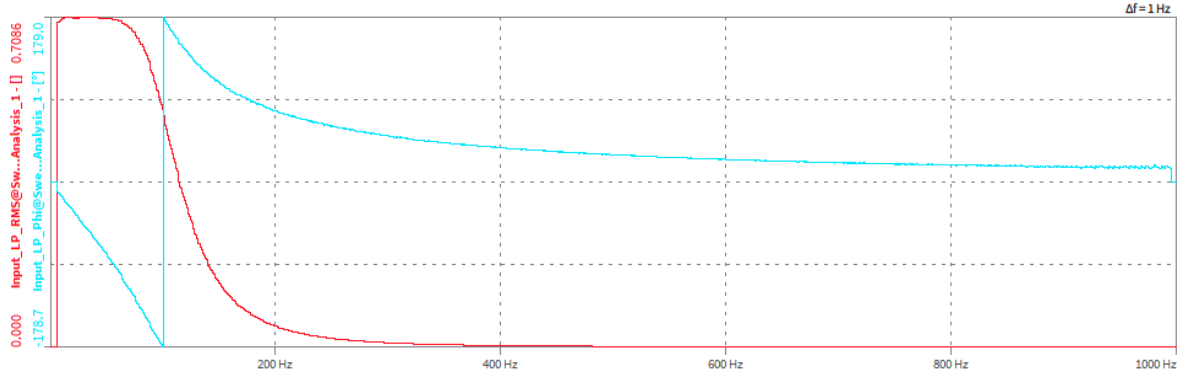
Create a Swept sine Analysis

Reference channel: Sweep from 1 – 1000 Hz

Input channel 1: Filtered Reference channel: LP-Filter; fc = 100 Hz, 4th order Bessel

Input channel 1: Filtered Reference channel: LP-Filter; fc = 200 Hz, 8th order Butterworth





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