

OPTICAL VIBRATIONS®



Video Deflection Technology



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DragonVision™ Video Deflection Technology is Vibration Analysis software that tracks very small movements within ordinary video recordings. Through complex algorithms, Dragon-Vision™ compares each one of the frames of the video looking for microscopic movements of specific points. Later, it subsequently converts the results into vibration signals. In fact, DragonVision™ can detect thousands of vibration points in a single video. Thus, making it an ideal tool for various types of vibration analysis that would otherwise take a long time to complete.

What type of video camera do I need?

Any camera works for **DragonVision™**. Although, the better the quality of the recording, the better the results. In fact, tests made with a camera of an iPhone XS with slow motion recordings at 1 meter distance showed a resolution in amplitude of 0.1 thousandths of an inch (2.54 microns) and 120 Hz frequency (7,200 CPM). Which is very useful for 95% of common machines.

There are many failures that can be detected with Dragon Vision. Mainly those related to low frequencies and phase. For example:

- Imbalance
- Misalignment
- Mechanical Looseness
- Bent Shaft
- Eccentricity
- Resonance
- Natural Frequencies (By bump test)
- Electric Noise



Differential Vibration Analysis

Differential Vibration Analysis is a study that measures the vibration of one object by subtracting the vibration of another object, creating a whole new signal and FFT. As an example, to measure the vibration of a motor subtracting the vibration from its own base (which could be generated by a larger blower or by another motor). Thus, identifying the vibration produced exclusively by this motor.

Differential vibration analysis is a technique rarely made now a days due to the impossibility of performing it using current techniques. Using the Looking Glass Technique this is very easy to do because you only need to select a reference area in order to subtract its vibration from the rest of the points.

Technical Specifications

Sample Rate	As Defined by Camera Selection: Resolution Resolution	iPhone 8 & above 240fps at Full HD Phantom v2640 12500fps at Full HD
Frequency Range	As Defined by Camera Selection: Full HD Resolution	iPhone 8 & above 7200RPM fMax Phantom v2640 350,000RPM fMax
Minimum Displacement	0.1 Mils at 3.3ft / 2.54 Microns at 1 Meter	
Video Deflection Factor	1X to Infinite Maximum	
Background Vibration Isolation	Cross Channel Anti-Aliasing Filter & Frame/Region Stabilization	
Calibration Methods	Embedded FFT (Highest Accuracy NIST Traceable). RMS Value using any Accelerometer output (3rd Party Calibration). Distance Method measures the distance between any two points within the video frame.	
Export Type	MP4 HD - Animated GIF	
Annotation Methods	Labeled Balloons with Custom Text	
Playback & Export Speeds	1/10th to Infinite Maximum	
Export Options	Export Amplified, Motion Detection and Target Points, and Full Export Capabilities	
Analysis Tools	Bandpass, Highpass, LowPass, & Bandstop of Time Waveform and Video, Time Waveform, FFT, Orbits, Phase Analysis, Harmonics, Sidebands, Decibels and Full Analysis Integration with Analysis Software through Export/Import.	

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WORLDWIDE

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