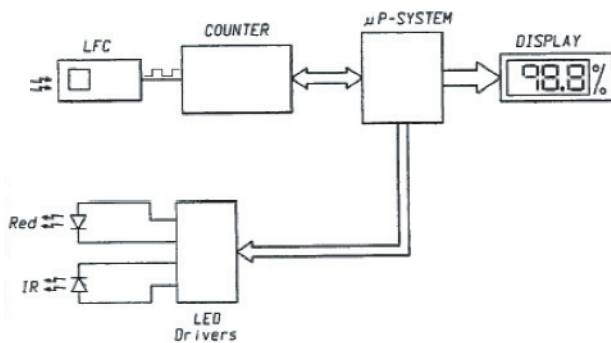


How does **Dolphin ONE™** pulse oximetry technology work?

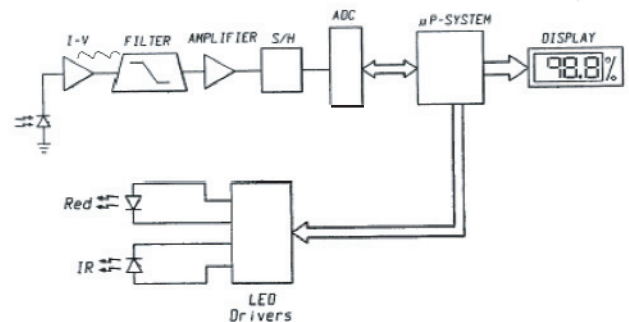
Digital Sensor with Light to Frequency Converter

Good signal processing results start with good raw sensor data. Dolphin ONE's patented sensor uses a Light To Frequency (LTF) converter in our set of sensors that digitizes the signal at the sensor site. All other pulse oximeters use an analog photodiode in their sensors. The LTF digital signal from the sensor site improves signal quality at the source. This digital process avoids noise issues generated by analog oximeters with very small signals, and a long patient cable, which in turn requires more microchips for signal conditioning.

Dolphin ONE LTF Signal



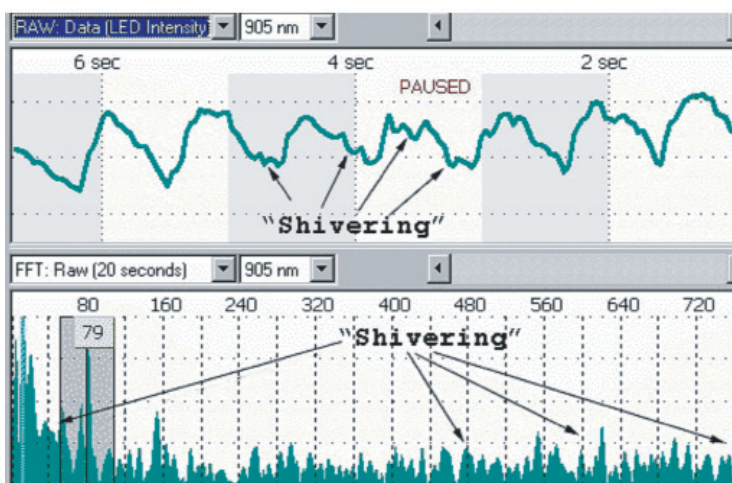
Analog Signal (e.g. Nellcor™, Masimo™)



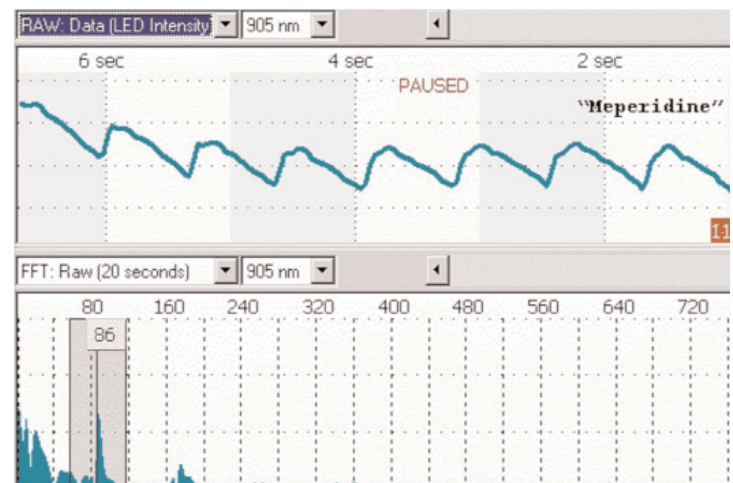
Dolphin ONE Core Technology (Oximetry Noise Elimination™) Frequency Processing of Digital Sensor Data

Dolphin ONE uses a sophisticated frequency domain processing technique as its core technology. Since the pulse is normally periodic in nature, Dolphin ONE technology uses the very powerful processing technique of Fast Fourier Transform (FFT, a mathematical conversion method) for signal separation. The FFT separates signal from noise and simultaneously improves the signal to noise ratio (signal quality). In the frequency domain, the frequencies that make up the total signal show up as peaks, with a dominant cardiac peak that carries a harmonic series, as shown below.

Motion

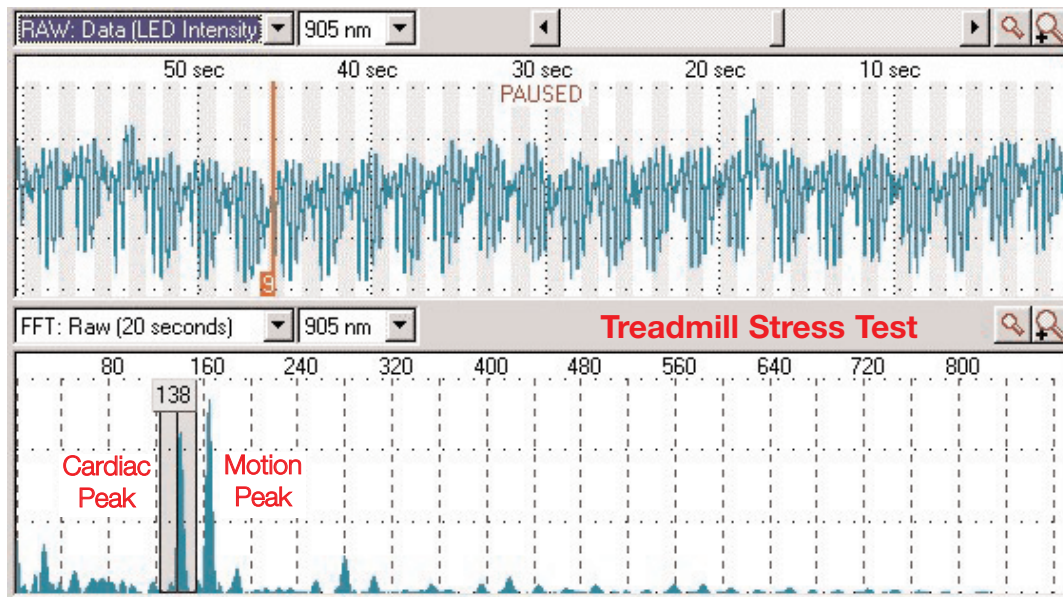


No Motion



"Real" Frequency Based Digital Signal Processing via the Fast Fourier Transform

Many oximeters claim to be "digital". Few oximeters perform the sophisticated signal processing that is necessary to be able to properly separate the arterial signal from other noise sources. Dolphin ONE uses the high fidelity LTF signal followed by FFT signal processing. The FFT is a well-understood and much researched area of signal processing.



Time Domain Signal Pre-Processing and Extensive Post-Processing

Basic frequency analysis alone is not enough to obtain high-end performance. FFT's have limitations that need to be addressed when put to use in the real world. Dolphin ONE performs significant pre-processing and post-processing of the signal of the FFT results to obtain superior performance.

Low Perfusion Performance

Low perfusion performance is the ability to measure very weak signals. Dolphin ONE's LTF and FFT processing allow a high quality signal to be captured and accurately measured to very small margins.

What does all this mean for me the user?

Dolphin Medical's patented Dolphin ONE technology provides a clearer signal than analog technology therefore reducing excess noise. Dolphin ONE's advanced technology produces a pure signal which reduces false alarms and improves performance during motion and low perfusion. Dolphin ONE is the right choice for critical care.

For additional information please call: 866-588-9539.



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