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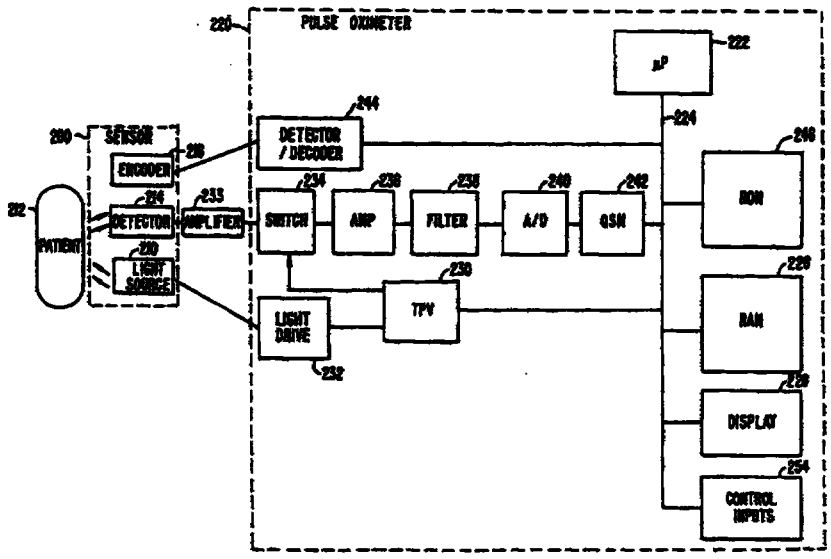
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(54) Title: PULSE OXIMETER AND SENSOR OPTIMIZED FOR LOW SATURATION



(57) Abstract

A pulse oximeter sensor (410) with a light source optimized for low oxygen saturation ranges and for maximizing the immunity to perturbation induced artifact. Preferably, a red (112) and an infrared light source (114) are used, with the red light source (112) having a mean wavelength between 700-790 nm. The infrared light source (114) can have a mean wavelength as in prior art devices used on patients with high saturation. The sensor of the present invention is further optimized by arranging the spacing between the light emitter (112, 114) and light detectors (116) to minimize the sensitivity to perturbation induced artifact. The present invention optimizes the chosen wavelengths to achieve a closer matching of the absorption and scattering coefficient products for the red and IR light sources. This optimization gives robust readings in the presence of perturbation artifacts including force variations, tissue variations and variations in the oxygen saturation itself.

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