

Adaptive illumination for consistent signal quality

Optical signal performance is strongly influenced by how light interacts with skin and tissue. Variations in skin tone can significantly affect signal strength and reliability, particularly for red wavelengths used in oxygen saturation measurement.

OPM applies AI-powered adaptive illumination, using spectral analysis to optimise optical output in real time across skin tones. The following section explains how this approach maintains signal quality across skin tones and illumination wavelengths.

AI-powered adaptive illumination

Carelight's OPM sensor technology uses spectral analysis to identify the skin tone characteristics of the user and dynamically optimise illumination in response. This adaptive approach ensures that optical output is continuously adjusted to maintain signal integrity.

Signal quality is maintained across the full skin tone range for all illumination wavelengths, including the red wavelength that is critical for reliable SpO₂ measurement.

The accompanying video demonstrates this adaptive illumination process in action across different skin tones.

OPM sensor technology is applied across a range of Weartech form factors, supporting monitoring at the wrist, chest and other body locations, depending on clinical and application requirements.

Adaptive illumination in practice



Scan to view
the video

