

SenSmart[®] Universal Oximetry System



Unreliable Measurements Undermine Confidence

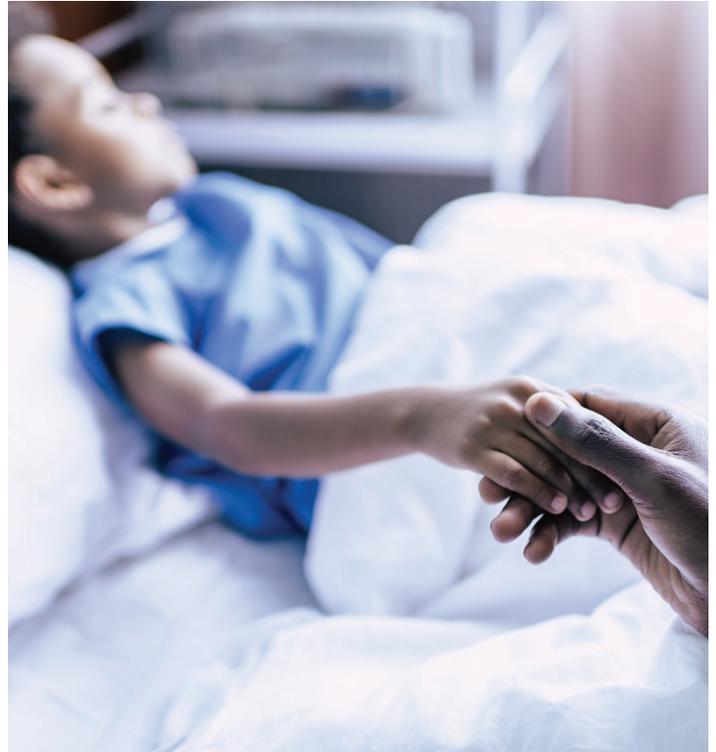
Anesthesiologists and perfusionists depend on monitoring equipment to inform critical care decisions. Knowing patient cerebral, tissue and systematic oxygenation levels can make an important difference during long and complex procedures. To have full confidence in their measurements, they need equipment that overcomes these common problems:

- Sensors may not be optimized for accuracy with monitoring systems

- Readings may be distorted by extraneous tissue or ambient light

- Inconsistent measurements create doubt and interrupt workflow

- Equipment may not account for variations in skin pigmentation



SenSmart® Cerebral and Tissue Oximetry Technology: Reliable Monitoring Technology That You Can Count On

Nonin SenSmart® cerebral and tissue oximetry technology helps you to manage patients at risk for compromised oxygen saturation of the brain or other tissues. It provides consistent, reliable measurements clinicians can trust for real-time decision making. Nonin cerebral and tissue oximetry systems provide responsive monitoring of adult, pediatric, and neonate patients. Nonin solutions give clinicians the information they need to inform treatment decisions in multiple care environments.

* Mohandas BS, Jagadeesh AM, Vikram SB. Impact of monitoring cerebral oxygen saturation on the outcome of patients undergoing open heart surgery. Ann Card Anaesth. 2013 Apr-Jun;16(2):102-6.

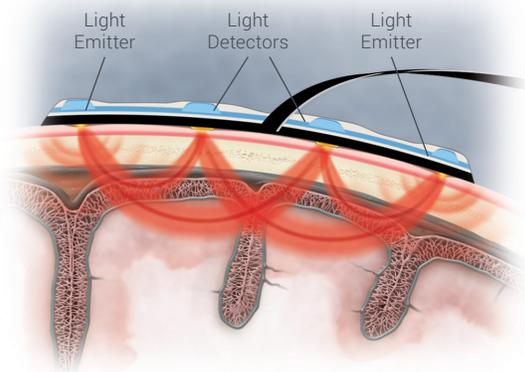
Advanced Technology for Proven Performance

Noninvasive regional (vs. pulse) oximetry uses near-infrared spectroscopy to measure blood oxygenation levels in the brain and other tissues. Those measurements can be affected by factors such as extraneous tissue, ambient light, variations in skin pigmentation, and the presence of myelin (in the case of infants and neonates). Sensors with only one emitter are more vulnerable to errors as a result of these factors.

Dual Emitter, Dual Detector Architecture

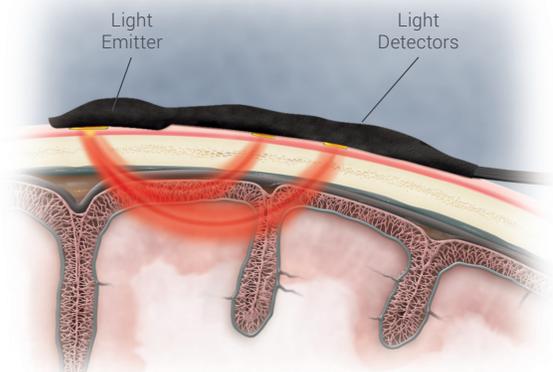
Nonin technology uses two emitters and two detectors in each sensor, plus patented algorithms, to create sixteen light paths through surface tissue and the cerebral cortex. This minimizes interference from extraneous tissue, variations in skin pigmentation, and ambient light. The resulting measurements are proven to be the industry's least affected by intervening tissue or surface effects.¹

Nonin rSO₂ Sensor Technology



With two emitters and two detectors, Nonin delivers deep tissue readings with minimal signal contamination.

Competitors' rSO₂ Sensor Technology



Competitors who use one emitter and two detectors experience more signal impact from extraneous tissue.

Sampling Rates and Display Update Speed

Nonin regional oximeters track changes in blood oxygen saturation levels and display results within two seconds. This provides fast, accurate information to help clinicians make quick and confident treatment decisions.

Reliable measurements help medical professionals provide responsive care

UPDATES WITHIN



2

SECONDS

1. Davie SN, Grocott HP. Impact of Extracranial Contamination on Regional Cerebral Oxygen Saturation: A Comparison of Three Cerebral Oximetry Technologies. *Anesthesiology*. 2012; 116(4):834-40.



Responsive Readings for Improved Outcomes

Cerebral Oxygen Desaturation

Anesthesiologists and perfusionists protect oxygen levels in the brain during procedures such as cardiopulmonary bypass (CPB) surgery. Maintaining adequate perfusion is critical to protecting cognitive function in recovery. Regional oximetry helps specialists track and respond to changing patient needs.

A clinical study evaluated the use of rSO₂ monitoring during CPB surgery and effects of cerebral oxygen desaturation on postoperative neurological outcomes. The study involved 100 patients in two random groups.

Postoperative Outcomes

In the control group, the anesthesiologist were blinded to the rSO₂ measurements; in the other, the anesthesiologist could see and respond to readings in case of cerebral desaturation. In both groups, rSO₂ declined during CPB.

Both groups were given tests one week and three months after surgery. In both a simplified antisaccadic eye movement test and a Mini-Mental State Examination, the intervention group had lower scores than the control group, indicating better cognitive performance.



36% DECREASE
IN INCIDENCE OF EARLY
COGNITIVE IMPAIRMENT
AFTER OPEN HEART SURGERY*

The study concluded that rSO₂ monitoring during CPB can reduce the incidence of postoperative neurocognitive decline.*

Read the Clinical Study at: nonin.com/resource/desaturation

* Mohandas BS, Jagadeesh AM, Vikram SB. Impact of monitoring cerebral oxygen saturation on the outcome of patients undergoing open heart surgery. Ann Card Anaesth. 2013 Apr-Jun;16(2):102-6.

Effective Monitoring When Parents are Counting on You

Pediatric and Neonatal Surgery

Cerebral and tissue oximetry are used in critical care environments to reduce potential complications in pediatric and neonatal surgery. Premature infants, and children with congenital heart disease (CHD), are vulnerable to neurologic and systemic complications due to hypoxia-ischemia.

These patients can have a broad range of brain development and associated tissue differences. But technologies that are not designed to account for these differences (i.e. highly variable levels of myelin) can provide inaccurate readings.



Nonin pediatric-specific sensors offer a small footprint and lightpath spacing for appropriate pediatric tissue depth. And only Nonin offers the Dynamic Compensation™ algorithm that minimizes the signal impact of myelin light absorption.

Dynamic Compensation™ Algorithm

Dynamic Compensation, an exclusive, patent-pending Nonin algorithm, incorporates real-time information from the tissue being examined to eliminate the impact of myelin (a light chromophore) on the signal accuracy. This Dynamic Compensation algorithm along with sensors designed specifically for neonate and infant populations, ensures accurate information clinicians can trust without adjusting settings.

Read the White Paper at: nonin.com/resource/dynamic-compensation

Multiple Parameters. One Monitor.

SpO₂, rSO₂, and Pulse Rate Values All in One Place

Consistent measurements of pulse and regional oxygenation give you the information you need to ensure patients receive appropriate oxygen intervention.

The SenSmart® Model X-100 Universal Oximetry System from Nonin Medical measures both pulse oximetry and cerebral/tissue oximetry values.

SenSmart® Model X-100 Advantages

For Adult, Pediatric, and Neonate Patients

Nonin SenSmart® cerebral and tissue oximetry technology allows for management of patients at risk for compromised oxygen saturation of the brain or other tissues. It provides consistent, reliable measurements clinicians can trust for real-time decision making. The SenSmart® X-100 is:



SenSmart® X-100 System

Versatile Compatible rSO₂ and SpO₂ sensors can monitor up to six cerebral or other tissue sites on adult, pediatric, or neonate patients

Dependable Readings are fast and reliable, even for patients with dark skin, low perfusion, or challenging health conditions

Simple The SenSmart monitor recognizes Nonin rSO₂ and SpO₂ sensors and displays their signals automatically

Convenient The pole-mountable, easy-to-operate monitor offers Bluetooth® wireless connectivity and includes SenSmart Download Management Software

Portable The monitor weighs less than 1kg compared to over 6kg for most other rSO₂ monitors. The system's battery life is 3 hours versus 30 minutes for other competitive options.

Versatile, Portable, Dependable.

Designed for Continuous Care

With a light and compact design, the SenSmart Model X-100 is highly portable. It is suited for use in a range of clinical settings, including neonate units and ambulatory surgical centers.

This versatile system can be used in multiple care settings.

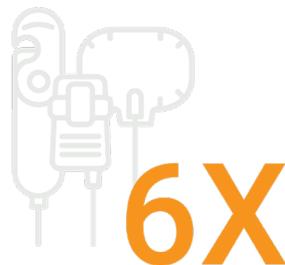


SenSmart® X-100 Features



Battery Life

A lightweight and portable design with at least 3 hours of battery life for monitoring during transport, inside or out of the hospital



Sensor Compatibility

Monitoring of up to 6 sites with compatible SpO₂ or rSO₂ sensors, with side-by-side, color-coded displays and trend lines for easy reading (live plethysmograph for SpO₂)



Extended Memory

Extended memory with up to 840 hours and the option to download, analyze, and save reports using SenSmart®
Download Software

Sensors for Every Patient Type

Pulse Oximetry and Cerebral and Tissue Oximetry

SenSmart sensors are designed for patient comfort and clinical flexibility. They can be used with patients of all ages in pulse oximetry (SpO_2) and cerebral and tissue oximetry applications. Neonate and pediatric sensors are available in adhesive and non-adhesive versions.

Highlights include:

The only over-the-forehead sensor on the market for optimal cable and connection positioning during cerebral monitoring

Adhesion proven to be reliable, even with highly diaphoretic patients

Appropriately sized sensors for use on neonates, infants, children, and adults

Non-adhesive and adhesive sensor options for infants and neonates



SenSmart 8204CA (Disposable)
Adult/Pediatric Sensor



SenSmart 8100S Series SpO_2 Soft Sensor
(Reusable)



SenSmart 8004CB (Disposable) and 8004CB-NA (Disposable)
Pediatric/Neonate Sensors



SenSmart 8100Q2 SpO_2 Ear Clip Sensor
(Reusable)

Count on Nonin.



Performance

Responsive, reliable measurements you can trust in any situation



Product

Durable devices built to withstand repeated use for long-lasting performance



People

Dedicated sales, engineering and service support for over 30 years

To learn more about our technologies and products, visit nonin.com/x100

Nonin Medical, Inc.

13700 1st Avenue North
Plymouth, MN • 55441-5443 • U.S.A.

Tel: +1.763.553.9968 1.800.356.8874

Fax: +1.763.577.5521

Email: info@nonin.com

Nonin Medical B.V.

Doctor Paul Janssenweg 150
5026 RH Tilburg • Netherlands

Tel: +31 (0)13-45 87 130

Email: infointl@nonin.com



nonin.com



U.S.A MADE

CE 0123

Rx Only