

# sentec

Digital Transcutaneous  
Blood Gas Monitoring



## SenTec OxiVenT™ Illuminate Ventilation and Oxygenation



**PCO2** | **PO2**

Continuous | Noninvasive | Safe | Easy to Use | Accurate

# OxiVenT™ – overcoming limitations of arterial blood gases, etCO<sub>2</sub> and SpO<sub>2</sub> monitoring

Assessing ventilation and oxygenation in neonatal patients is a challenge. With the SenTec OxiVenT™ Sensor, a new generation of transcutaneous measurement technique overcomes the limitations of current methods and helps healthcare professionals to guide ventilation and oxygenation-related treatments in neonates

**For better patient outcomes  
where it matters most.**



## Why SpO<sub>2</sub> is not enough

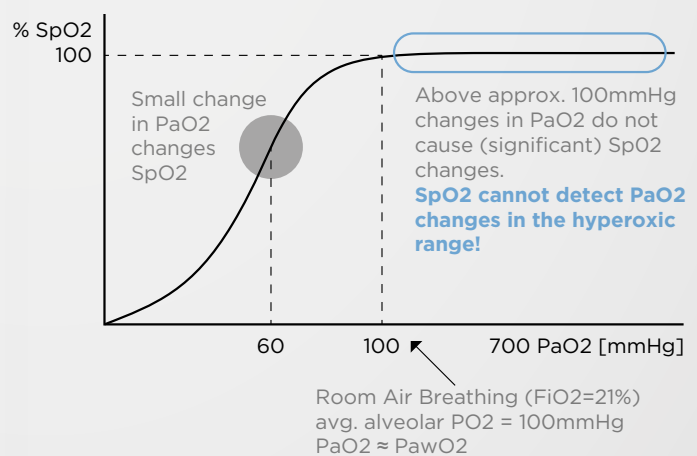
Due to the S-Shape of the 'oxyhemoglobin dissociation curve' (ODC) hyperoxemia/hyperoxia cannot be detected by pulse oximetry (SpO<sub>2</sub>). Monitoring tcPO<sub>2</sub> provides a crucial parameter to avoid the risk of hyperoxia and severe complications such as **Retinopathy of Prematurity (ROP)**.

## Arterial Blood Gas sampling

Provides only a snapshot every few hours and bears the risk of invasiveness, especially in neonatal patients.

## EtCO<sub>2</sub> Monitoring

Is sometimes inefficient in patients with small tidal volumes and inapplicable in certain ventilation modes such as HFO.



# Dedicated to neonatal needs

SenTec's revolutionary OxiVenT™ Sensor featuring optical tcPO2 combined with state-of-the-art tcPCO2 technique provides continuous and accurate feedback on ventilation and oxygenation changes.

## Different display options:

tcPCO2, tcPO2 and heating power trends



Baseline and Delta values

Two different SenTec TC Sensors<sup>1</sup> connectable:



### V-Sign™ Sensor:

- PCO2** measured by Stow-Severinghaus type PCO2 sensor
- reliable and safe
- clinically trusted for more than 10 years



### OxiVenT™ Sensor:

**PCO2 | PO2**

- tcPO2 measured by dynamic fluorescence quenching
- virtually drift free
- high accuracy

<sup>1</sup> For pediatric & adult patients additional SpO2 & Pulse Rate available in the same Sensor.

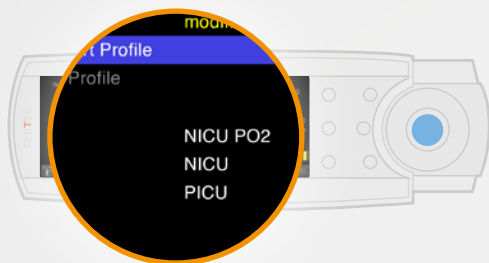
### Set baseline and markers

Set a baseline just before changing the treatment to assess the impact on the patient's ventilation and oxygenation.

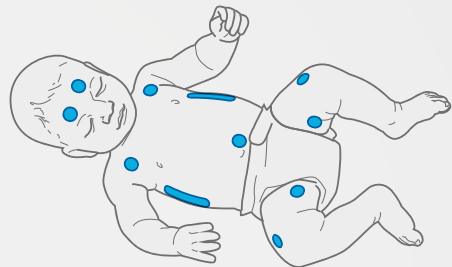


### User profiles

Quickly adapt settings to your needs: select individually customized profiles stored on the monitor.



### Select from multiple recommended measurement sites

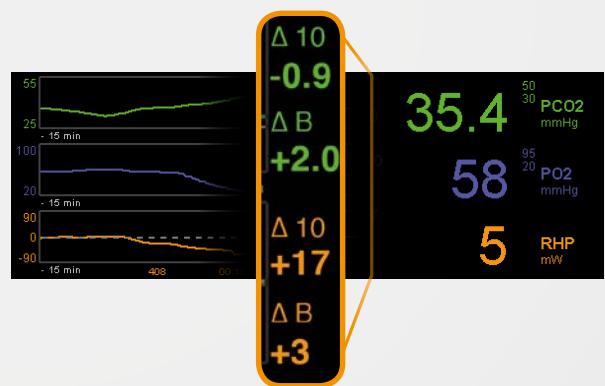


### Trendlines allow early detection of ventilation and oxygenation changes

Estimates of PaCO2 and PaO2 in trendline, baselines, and delta values.

### Relative Heating Power

(RHP) shows the required heating power to keep the Sensor at set temperature. Changes of RHP may be attributable to changes in perfusion.



### Delta values

Numerical indication of the difference between the current reading and the reading from the set Baseline and 10 min before.

# Effective and efficient monitoring

Save your time for the important tasks

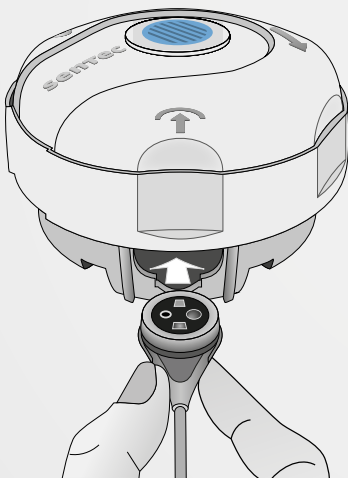
## SmartCalMem

Disconnect the Sensor (e.g. to untangle cables or to move the patient) without removing the Sensor from the patient. No need to recalibrate the Sensor when re-connecting.



## Automatic calibration management

Simply store the Sensor in the Docking Station - calibration is fully automatic. Within a few minutes "Ready for Use" status is established and maintained until patient application.



## Easy maintenance

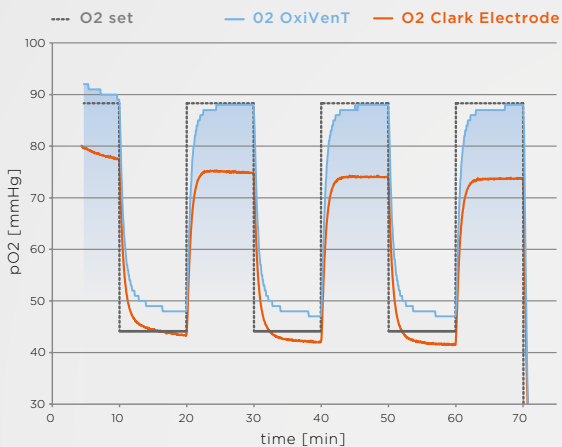
One simple tool to perform the membrane change. Membrane life up to 42 days.

## Transportable

Lightweight, dedicated mounting plates/roll stands, battery life up to 10 hours.



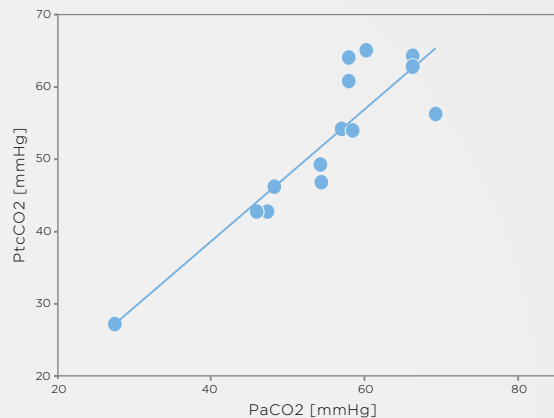
### Excellent accuracy



*In Vitro* performance test of the SenTec OxiVenT™ tcPO<sub>2</sub> compared to a clark type electrode demonstrates higher accuracy [internal data].

### Safe sensor temperature and site time management

- Redundant sensor temperature controls to avoid the risk of skin irritations.
- Automatic, institution-restrictable site time control and site inspection intervals.
- Automatic sensor temperature reduction if site time has elapsed and site inspection is missed.
- Safety-relevant parameters are password protected.
- A low Sensor temperature of 41°C (tcPCO<sub>2</sub>) and 43°C (tcPO<sub>2</sub>) is recommended in neonatal patients.



Comparison between tcPCO<sub>2</sub> measured with the SenTec Digital Monitoring System and arterial carbon dioxide in neonatal patients [Rowley] shows high correlation and accuracy\*.

### Automatic artifact detection

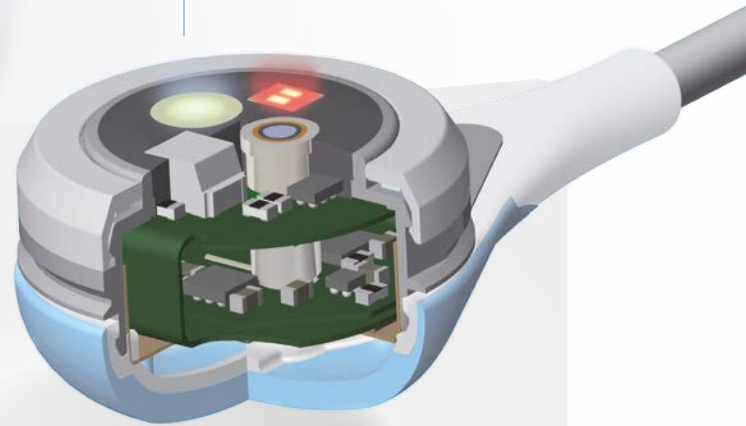
Automatic data quality verification and artifact detection.

\*Poster presentation at AARC in 2008: Daniel D. Rowley et al, Charlottesville, Virginia, U.S.A. Also refer to Storre JH, Magnet FS, Dreher M, Windisch W. Transcutaneous monitoring as a replacement for arterial PCO<sub>2</sub> monitoring during nocturnal non-invasive ventilation. *Respir Med* 2011;105:143-150.

# Reliable and safe

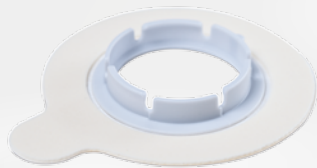
## Best signal quality

Digital Sensor with integrated CPU. Measured signals are digitized and preanalyzed in the Sensor head for the best signal quality.



## Multi Site Attachment Rings (MAR)

The design enables a gentle sensor application and a smooth removal without damaging the sensitive skin.



e.g.  
Dräger, Philips  
and EMR

## Connectivity / Data Management

Direct connectivity to Patient Monitoring Systems.

## Clinically trusted

Clinical usage of over 1000 SDMS with V-Sign™ in neonatal units and over 2000 SDMS in pediatric/adult units around the world.



Continuous and noninvasive monitoring of tcPO2 and tcPCO2 supports the therapy guiding in Neonates in...

- ... **noninvasive ventilation**
- ... **HFO / HFJV ventilation**
- ... **volume-targeted ventilation**
- ... **volume-limited ventilation**
- ... **lung recruitment**
- ... **oxygen titration**
- ... **weaning from mechanical ventilation**
- ... **decision to (re-)intubate or extubate**

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