sentec
Advancing Noninvasive
Patient Monitoring

Watch the lungs breathe!

Regional lung function monitoring powered
by Electrical Impedance Tomography (EIT)

Continuous monitoring – without radiation exposure

Highly compact electronics wrapped in soft, breathable fabric

Sentec's LuMon(TM) System uses electrical impedance tomography (EIT) – where weak electrical signals are applied and converted into images – to enable clinicians to visualize lung function at the bedside continuously, noninvasively, and without exposure to radiation.

LuMon™ Monitor

- Standalone device
- Compact & lightweight design
- Versatile and intuitive graphical user interface (GUI)

SensorBelt

The SensorBelt, is secured around the patient's chest. Its 32 embedded electrodes measure the ventilation in different lung regions, constantly converting the measured data into images.

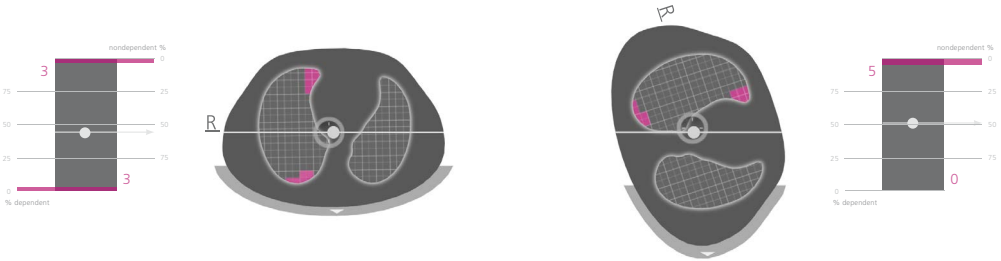
Its patented oblique design allows the SensorBelts to follow the movement of the ribs without restricting patient breathing, which would be highly undesirable in patients suffering from respiratory insufficiency.

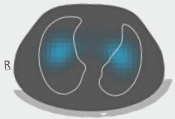
SensorBelts are for single-patient use and can be used for up to 72 hours.

Silent Spaces: See what really matters

The so called Silent Spaces – lung areas receiving little or no ventilation – occur for a variety of reasons including lung collapse, fluid build-up or even overdistension. The LuMon™ System allows visualization of Silent Spaces and provides insight into potential causes (depending if Silent Spaces are in dependent or non-dependent lung areas) so that further examination and appropriate treatment can be delivered.

Reliable data regardless of patient positioning



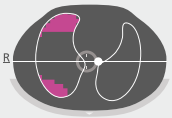


VentView

Watch the distribution of air within the lungs during breathing just like a movie. This information on regional ventilation is brought to you continuously and in real-time.

LuFuView

The LuFuView images update with each breath, displaying vibrant indicators of regional lung function.



Silent Spaces

Finally see what really matters. The Silent Spaces images are designed to highlight lung areas receiving little or no ventilation to help detect collapsed, fluid-filled, or distended lungs – even pneumothoraces or pleural effusions.

Innovative and cost-effective technology

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Regional lung function measurement by EIT clearly holds the potential to improve mechanical ventilation in general. EIT monitoring has proven to be useful in optimizing ventilator settings in critically ill patients suffering from respiratory compromise such as ARDS [1].

Particularly lung collapse and lung overdistention can be monitored [2] [3] and therefore EIT can play an important role in the individualization. and adjustment of optimal PEEP values [4] [5]. Furthermore, EIT could also help to reduce postoperative atelectasis and to guide protective ventilation strategies [6].

Overall, continuous, regional lung function monitoring with the LuMon™ system can be expected to reduce ventilator-induced lung injuries and shorten the duration of ventilation.

References:

[1] Bachmann et al. Electrical impedance tomography in acute respiratory distress syndrome. Critical Care 2018, 22(1): 263.

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[3] Spadaro et al. Variation of poorly ventilated lung units (silent spaces) measured by electrical impedance tomography to dynamically assess recruitment. Critical Care 2018, 22(1): 26.

[4] Zhao et al. Positive end-expiratory pressure titration with electrical impedance tomography and pressure–volume curve in severe acute respiratory distress syndrome. Ann. Intensive Care 2019, 9(1): 7.

[5] Ukere et al. Perioperative assessment of regional ventilation during changing body positions and ventilation conditions by electrical impedance tomography. British Journal of Anaesthesia 2016, 117(2): 228-35.

[6] Pereira et al. Individual positive end-expiratory pressure settings optimize intraoperative mechanical ventilation and reduce postoperative atelectasis. American Society of Anesthesiologists 2018, 129(6): 1070-1081.

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