

# PortaMon™

*Near infrared spectroscopy on the go!*

## General

The PortaMon is our wireless and portable NIRS system for measurements on muscle. The system measures changes in oxygenation in terms of oxy-hemoglobin, deoxyhemoglobin and total hemoglobin, which is an indication of the blood volume in the muscle.

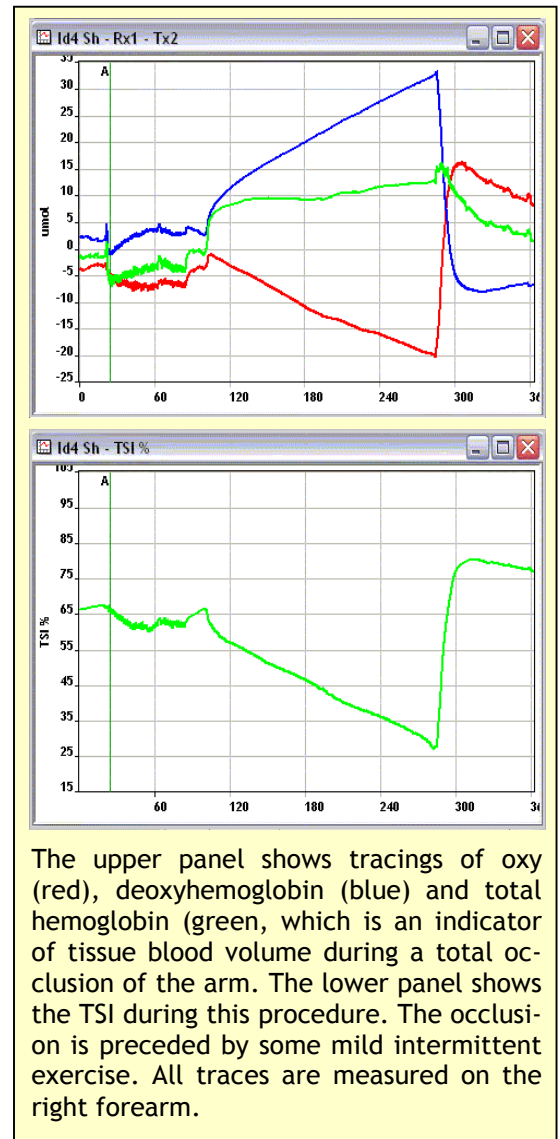
Furthermore it calculates the tissue saturation index (TSI) in percentage, which reflects the average saturation of the underlying muscle tissue.



Portable NIRS device: The PortaMon

## Highlights

- > Measures local tissue saturation index as well as oxy, de-oxy and total hemoglobin
- > Bluetooth connection with laptop or on board data collection
- > Up to 8 hours on one battery
- > Interchangeable and rechargeable battery
- > Lightweight with the size of a cell phone
- > Oxysoft, superior analysis software
- > Option for accelerometer
- > Option for simultaneous external data collection



### Company Information

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## Technical specifications

<b>Technology</b>	Continuous wave near infrared spectroscopy using modified Lambert-Beer Law and spatially resolved spectroscopy
<b>Measures</b>	Changes in oxy-, deoxy and total hemoglobin and regional tissue saturation index (TSI), optionally an accelerometer can be installed
<b>Indications</b>	Battery status, Bluetooth connection, signal strength
<b>Operating system</b>	Windows XP, Windows Vista or Windows 7
<b>Communication</b>	Bluetooth
<b>Recording</b>	On-line or off-line recording
<b>Storage</b>	Real time data storage. Multiple subsequent measurements are possible without clearing the memory. Up to 2 hours data storage at 10 Hz.
<b>Events</b>	Insert off-line events on the PortaMon and on-line events in the software
<b>Channels</b>	3 channels to measure relative concentrations and 1 channel to measure absolute oxygenated Hemoglobin percentage (TSI)
<b>Light source</b>	Light emitting diodes (3x2 wavelengths)
<b>Wavelengths</b>	Standard nominal 760 and 850 nm, others possible
<b>Detector(s)</b>	Photo diode with ambient light protection
<b>Sampling time</b>	From 0.1 Hz up to 10 Hz
<b>Noise</b>	~0.004 standard deviation in optical density at a total of ~6 optical densities at a measurement frequency of 10 Hz
<b>Calibration</b>	recommended to do once a year
<b>Optode Distance</b>	Three distances are used between receiver and the three transmitters: 30, 35, 40 mm
<b>Power</b>	Up to 8 hours with with one interchangeable and rechargeable battery
<b>Weight</b>	88 grams, including battery
<b>Size</b>	WxDxH: 84x54x20 mm
<b>Environment</b>	Operating temperature ~10-35 °C
<b>Interference</b>	No interference with EEG, ECG or EMG

## References

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Shadgan B, Reid DW, Gharakhanlou R, Stothers L, Macnab AJ. Wireless near-infrared spectroscopy of muscle oxygenation and hemodynamics during exercise and ischemia. *Spectroscopy* 2009; 23 (5-6): 233-241.

*Being a small flexible company with more than 16 years of experience in near infrared spectroscopy we are aware of the special needs of scientists. Support with setting up your research can all be arranged.*

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