Product **Catalogue** 2017

artinis

Optical imaging **made easy**

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About us

Optical imaging made easy

Artinis Medical Systems is an innovative Dutch company that develops near-infrared spectroscopy (NIRS) devices.

At Artinis, we make optical imaging easy. We do so by providing fit to purpose solutions, by focusing on usability within the design process and by providing superior after-sales support. We come from the research field ourselves and we cooperate with scientists from various institutes around the globe, therefore making sure that our products are based on a sound scientific background.

For over a decade we have been providing user-friendly, high-tech and top-quality solutions for NIRS measurements. Our products range from 1 to over 100 channels and from completely wearable to fully customizable. We are world leader in portable NIRS, resulting in hundreds of publications worldwide. Artinis truly has a product line to be proud of!

We enjoy sharing our extensive knowledge of the field and our products with you. We do so by offering customer support, research consultancies, online and on-site training, live product demos and much more. Please contact us to see what we can do for you.

Artinis Medical Systems B.V.
Einsteinweg 17, 6662 PW Elst,
The Netherlands

T. +31 481 350 980.
E. hello@artinis.com

Meet our team

At Artinis, we go above and beyond to support you!

Willy Colier
CEO

Roeland van der Burght
CEO

Marco
Application Specialist

Martine
Application Specialist

Luc
Electronics Engineer

Fransisco
Embedded Software Engineer

Thijs
Industrial Designer

Ruby
Visual Designer

Rosita
Office Manager

Marianne
Project & Quality Manager

Jorn
Software Engineer

Mathijs
Biomedical Engineer

Arian
Electronics Engineer

Jaap
Software Engineer

Erwin
Electronics Engineer

Wout
Industrial Designer

Berrie
Purchase & Production

Henny
Purchase & Production


On
Measure
Status
Rx 1

NIRS theory

The theory behind near infrared spectroscopy

All cells in the body have a constant but variable need for oxygen. The body stores for oxygen are minimal. Therefore, a constant and adequate supply of oxygen to the tissues through the circulation is essential. Any interference with tissue oxygenation will lead very rapidly to irreversible damage. Hemoglobin, in the red blood cells, is responsible for the oxygen transport. We distinguish two types of hemoglobin. Oxy-hemoglobin (O_2Hb), where the oxygen is attached and deoxyhemoglobin (HHb), hemoglobin without oxygen.

Theory

Near InfraRed Spectroscopy (NIRS) is a simple and non-invasive optical technique that measures the concentration changes of oxy-, deoxy-, and total hemoglobin.

The technique is based mainly on two principles:

- Human tissue is relatively transparent to light in the Near InfraRed (NIR) region.
- Hemoglobin is the biggest absorbers of light in the NIR region. In this near infra-red region, O_2Hb and HHb exhibit oxygen- dependent absorption.

$$OD = Log\left(\frac{I_0}{I}\right) = \varepsilon(\lambda) \cdot c \cdot L \qquad \Delta c = \frac{\Delta OD(\lambda)}{\varepsilon(\lambda) \cdot L \cdot DPF}$$

Formula

If the absorption is known, the modified Lambert-Beer law can be used to calculate the concentration changes of the chromophore of interest e.g. O_2Hb and HHb.

This equation is valid for a medium with one chromophore. If more chromophores are involved, we need to measure at least as many wavelengths as there are chromophores present. By using 2 different wavelengths, the relative changes in both O_2Hb and HHb concentrations can be displayed continuously.

OD: Optical density $=Log_{10}(I_0/I_1)$, I_0 is the incident light, I_1 the transmitted light.

ε(λ): **Chromophore's absorption coefficient,** λ is the wavelength used (in nm).

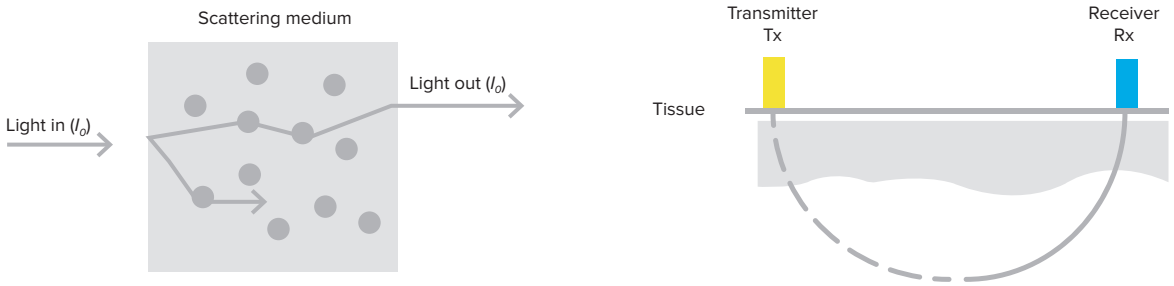
c: Concentration (in µM) of the chromophore

L: =Distance (in cm) between light entry and exit points

DPF: Differential Path length Factor, accounts for the increase in optical path length due to scattering in the tissue.

Technique

All our devices use the continuous wave NIRS technique. For NIRS you need at least 1 receiver and 1 transmitter to form a channel. The transmitter transmits light in 2 different wavelengths. In the picture, you see a representation of this. The light is represented by a banana shape through the tissue. The depth in which NIRS measures is about half the distance between the transmitter and receiver. Standard, that is about 30 mm, so it measures about 15 mm deep into the tissue. You measure at capillary level, where the oxygen exchange takes place. The data represents relative concentrations, meaning you do not know the starting value, but you do measure the change in concentrations in microMolar (micromole/liter tissue).



fNIRS

Functional NIRS (fNIRS) is the use of NIRS for the purpose of functional neuroimaging. By using fNIRS brain activity is measured through hemodynamic responses associated with neuron behavior.

TSI

A selection of our products is designed to measure the Tissue Saturation Index, abbreviated to TSI. This parameter is a direct indicator of the percentage of oxygenated Hb of tissue directly below the sensor. The definition of TSI is “what percentage hemoglobin in the tissue is oxygenated”, or in more mathematical terms:

$$TSI\,[\%] = \frac{[O_2Hb]}{[O_2Hb] + [HHb]} \times 100\%$$

For TSI determination we use a technique based on the photon diffusion theory [Patterson et al. 1989], which later advanced to Spatial Resolved Spectroscopy [Suzuki et al. 1999]. To obtain the TSI the light intensity at multiple distances from a transmitter is determined. From this information, the relative oxy- and deoxyhemoglobin concentrations are obtained. Subsequently, the fraction between the oxyhemoblobin (O_2Hb) and deoxyhemoglobin (HHb) are derived and displayed as TSI.

This method uses fixed source-detector distances, which is incorporated in a selection of our products, like the PortaMon, the PortaLite and PortaLite Mini. Furthermore, the Oxymon can be setup to perform TSI measurements. TSI offers you a quick and easy parameter to intuitively assess the tissue oxygenation of your subjects.

THE OXYMON

OxyMon

A laser-based multi-channel NIRS system for the measurement of brain and muscle oxygenation.

Reliable - Robust - Customizable

The OxyMon is our multi-channel, continuous wave NIRS system that can be customized to your needs. It is currently the fastest, most sensitive and most reliable NIRS system on the market. It can be used to measure both the TSI and the relative concentration changes in oxy-, deoxy- and total hemoglobin in brain and muscle tissue.
What makes the OxyMon truly unique is that it uses temperature stabilized detectors and laser diodes. Lasers are more defined in wavelengths and have a higher intensity than LED for example. Keeping them at a constant temperature assures a stable wavelength for the light sources and lower noise for the detectors. Another unique feature is that the OxyMon sampling rate can be upgraded from the standard 50 Hertz to a staggering 250 Hertz. The sampling rate is independent of the number of channels in use.

The OxyMon is highly customizable. We offer systems from 1 up to 112 channels, holders in many configurations, headcaps in different sizes and a wide range of fibers. If you need help with your fit-for-purpose solution, you are welcome to contact us!

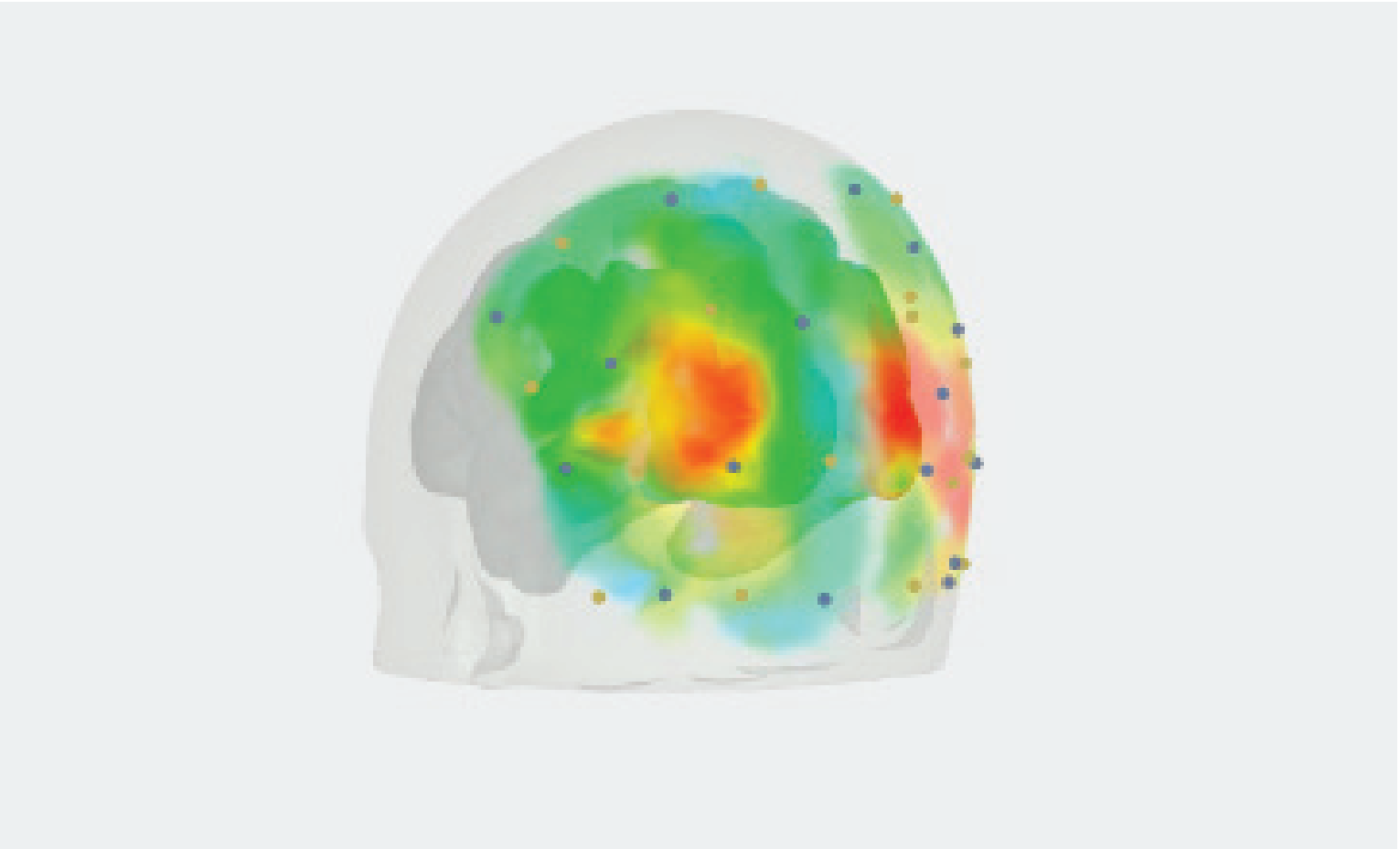
NIRS
Near **I**nfra**R**ed **S**pectroscopy is a non-invasive optical technique that can be used to continuously measure concentration changes of oxy- deoxy- and total hemoglobin in tissue.

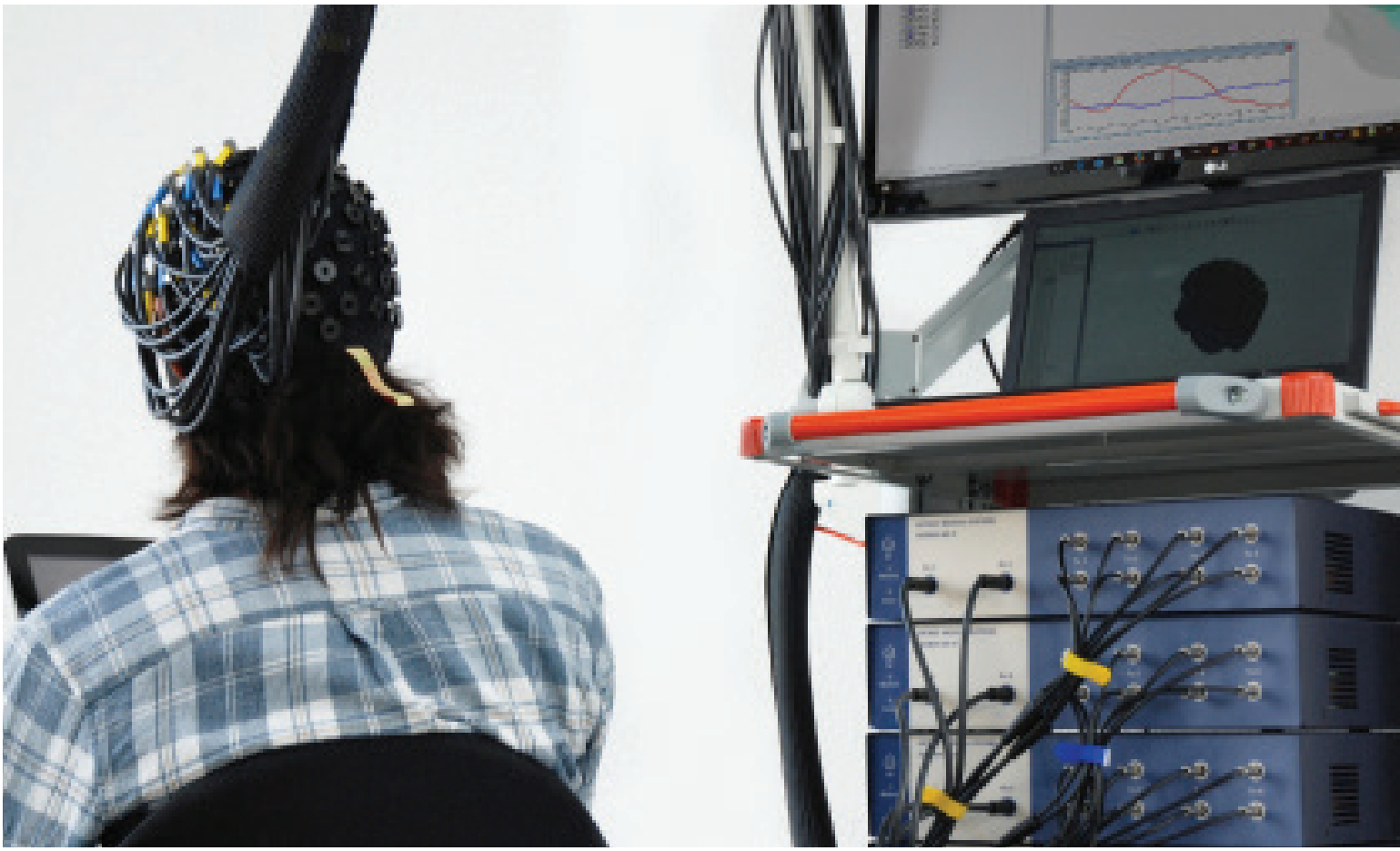
fNIRS
Functional NIRS is the use of NIRS for the purpose of functional neuroimaging.

TSI
The **T**issue **S**aturation **I**ndex is the absolute percentage of oxygenated hemoglobin.

More info on pages 11-13.

APPLICATIONS
The OxyMon has been used in almost all thinkable fields of research. Examples are studies of the aging brain, the brain at high altitude, functional testing, brain-computer interfacing and rehabilitation. The system is compatible with other techniques such as EEG, MRI, eye-tracking and many more. For a complete overview of all (f)NIRS publications performed with our equipment go to http://www.artinis.com/publications/.





What's in the box?

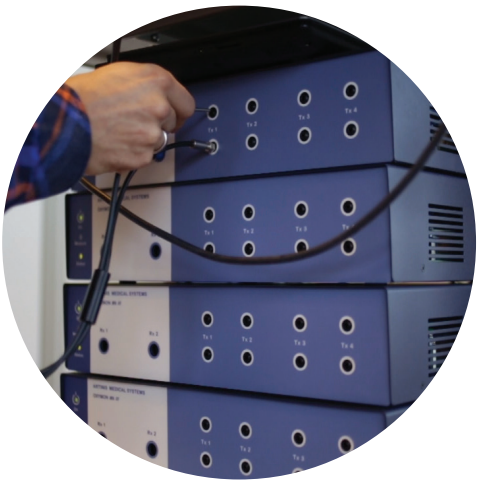
- ☑ The OxyMon
- ☑ Fibers of your choice
- ☑ Headcap or holders of your choice
- ☑ License key
- ☑ Oxysoft, data analysis software
- ☑ Stickers and bandages
- ☑ Laptop with pre-installed software
- ☑ User Guide
- ☑ Support in setting up your research

Questions about the OxyMon?
Ask our application specialists.

ASKFORINFO@ARTINIS.COM

Technical Specifications

SPECS	**Description**
TECHNOLOGY	Continuous wave near infrared spectroscopy using modified Lambert-Beer law.
MEASURES	Changes in oxy-deoxyhemoglobin and optionally regional tissue saturation index (TSI) using spatially resolved spectroscopy.
DATA ANALYSIS SOFTWARE	Oxysoft, 3D extension available.
OPERATING SYSTEM	Windows 7, 8, 10
LIGHT SOURCES	Temperature stabilized pulsed laser sources (class I according to IEC-60825-1, safety of lasers)
OPTODE HOLDERS	Multiple distances for muscle or head possible, multichannel generally customer specific.
OPTODE DISTANCE	Depending on application. frontal head up to 6 cm possible with arterial pulsation still visible. For fNIRS 3-4cm is recommended.
ENVIRONMENT	Operating temperature ~10-27 °c. both source and detector are temperature stabilized. Altitude: 0-5750 m.
DIMENSIONS	Weight: 7 to 8 kg, wxdxh: 37x30x9 cm
CHANNELS	Between 1 and 112.
STORAGE	Real-time, unlimited data storage.
EXTERNAL INPUTS	Optional are 8 additional analog inputs at 50 hz (250 hz optional), ± 4 volt.
DETECTORS	Temperature stabilized and cooled avalanche photo diodes with ambient light protection.
WAVELENGTHS	Standard nominal 765 and 855 nm, other possible.
INTERFERENCE	With NMR compatible fibers the instrument can be used inside the MRI. EEG/ECG does not interfere with the optical signal.
POWER	Auto sensing: 110-240 v, approx. 40 watt.



OxyMon

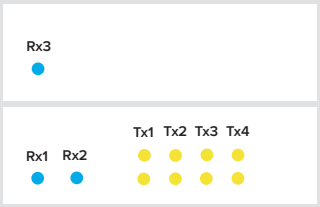
Channels

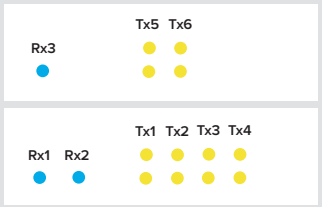
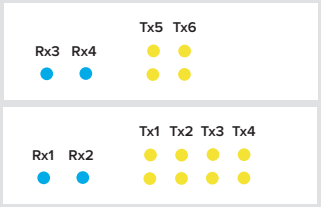
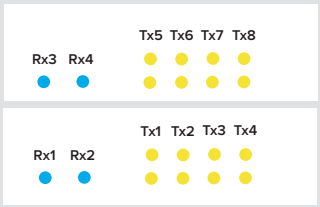
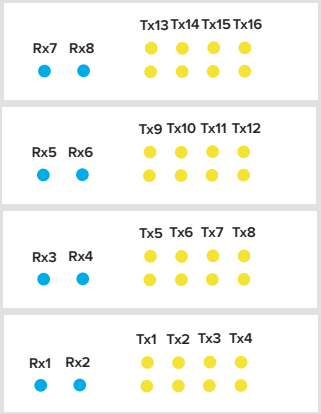
We offer OxyMon systems from 1 channel up to 112 channels. Our system is built up from cabinets. With one cabinet, you can make a maximum of 8 channels. By combining multiple cabinets, more channels can be made. The cabinets can be stacked and used as one big system, but every cabinet also works as an independent smaller system.

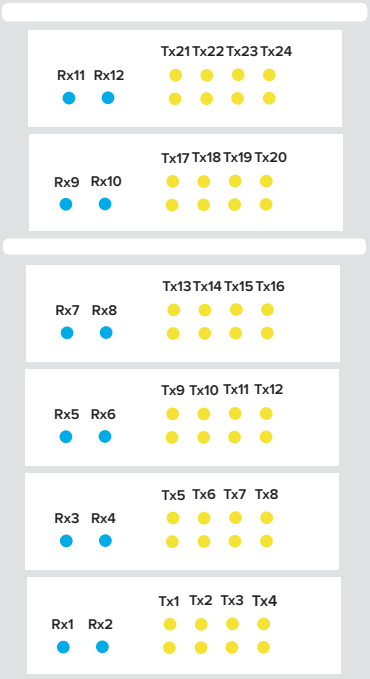
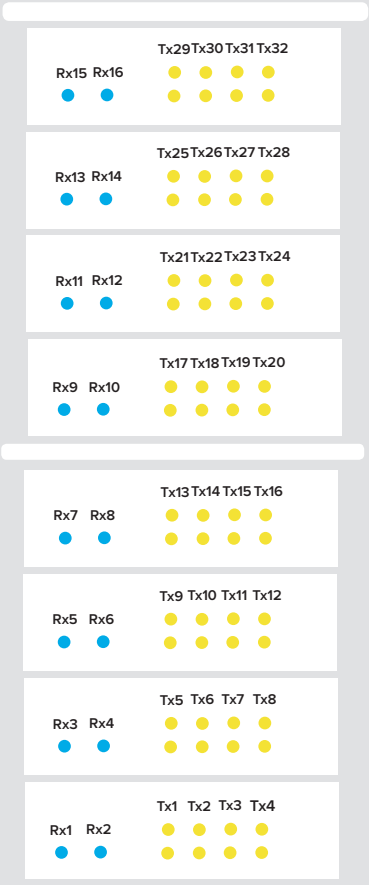
In the following table the OxyMon combinations and their matching commonly used optode templates are shown. In the next chapter, you will find more detailed information on these optode templates. For OxyMon channel specifications please read the appendix or contact us.

Do you already have an OxyMon?

The OxyMon system is very easily upgradable with more channels. If you are looking to upgrade, contact us about the possibilities!

NAME	COMMON TEMPLATE	OTHER TEMPLATE	CABINETS
1-CHANNEL 0101-00001-00	**1x 1-CH**	**-**	
2-CHANNEL 0101-00002-00	**2x 1-CH**	**1x2**	
4-CHANNEL 0101-00003-00	**4x 1-CH**	**2x2, 1x4, 2xTSI**	
8-CHANNEL 0101-00006-00	**2x 4-CH**	**1x8, 4x1**	
12-CHANNEL 0101-00008-00	**1x 12-CH**	**3xTSI**	

NAME	COMMON TEMPLATE	OTHER TEMPLATE	CABINETS
14-CHANNEL 0101-00009-00	2x 7-CH	3xTSI	
17-CHANNEL 0101-00010-00	1x 17-CH	2x7, 4xTSI	
24-CHANNEL 0101-00011-00	2x 10-CH	1x24, 2x8, 4x4, 8x1, 4xTSI	
48-CHANNEL 0101-00012-00	2x 24-CH	Many more, contact us.	

NAME	COMMON TEMPLATE	OTHER TEMPLATES	CABINETS
72-CHANNEL 0101-00013-00	**3x 24-CH**	Many more, contact us.	
112-CHANNEL 0101-00014-00	**4x 24-CH**	Many more, contact us.	

OxyMon

Optode templates & holders

We have many different optode templates and for each template we have a specific holder. For your convenience, we created standard templates based on what is used most often. On the following pages, we display pictures of these templates and the holders. For OxyMon channel specifications please read the appendix.

Do you prefer a custom holder?

If you have a specific wish for a custom holder, please do not hesitate to ask us about the possibilities.

Standard holders

1-CHANNEL

Fibers required:

1x Rx 1-end

1x Tx 1-end

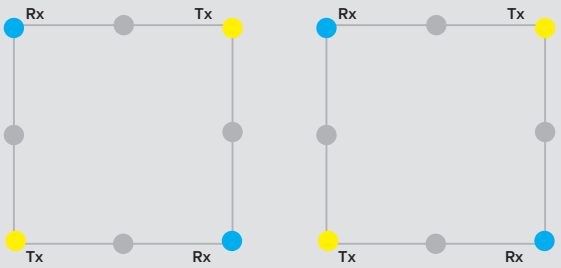
0107-00065-00

2X 4-CHANNEL

Fibers required:

2x Rx 2-end

4x Tx 1-end



0107-00069-00

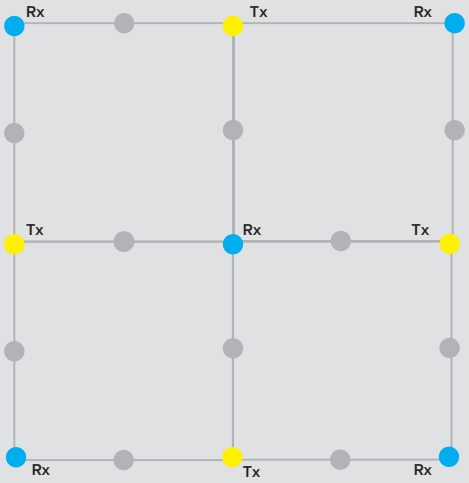
Other holders

12-CHANNEL

Fibers required:

1x Rx 1-end
2x Rx 2-end

4x Tx 1-end



0107-00076-00

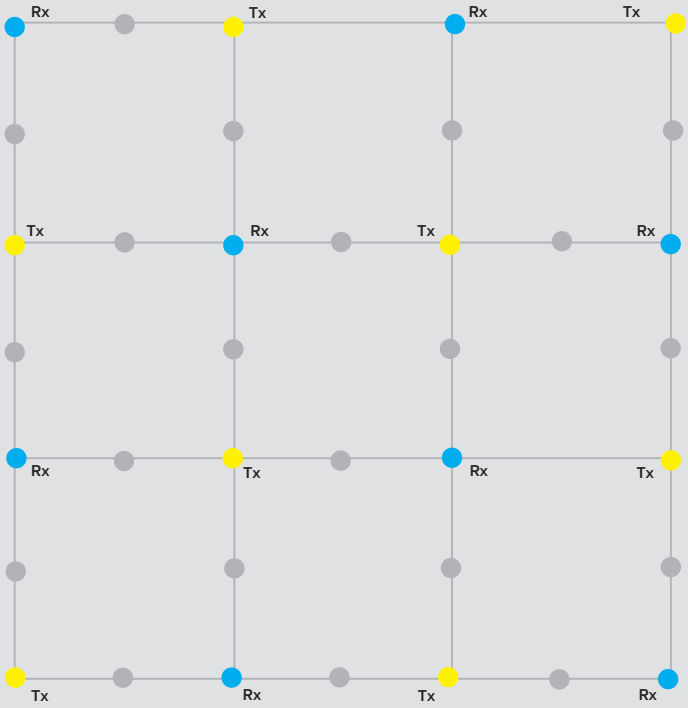
24-CHANNEL

Fibers required:

4x Rx 2-end

8x Tx 1-end

0107-00078-00



OxyMon

Headcaps

At Artinis we designed and developed our own headcap. This headcap shows major improvements over the other commonly used NIRS headcaps, such as EEG caps.

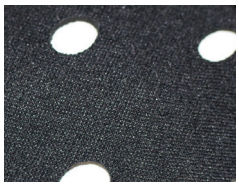
Advantages of the Artinis neoprene headcap include:

- The distances between the fibers is approximately 30 mm everywhere.
- It has an ergonomic fit and enhanced comfort due to the new chin strap.
- The headcap covers the entire head.
- It causes a steady pressure on each fiber.
- The headcap can handle the weight of 100 channels with ease.
- It comes in many different sizes, from infant to adult.

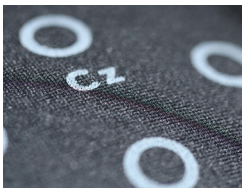
How does it work?

All the configurations shown in previous chapters can be used on the headcap as well. By placing the single optode holders in the headcap, the fibers can be placed anywhere on the head.

STANDARD NEOPRENE HEADCAP



Option 1



Option 2

Neoprene headcap with adjustable chin strap. Optode marks and the Cz point are printed on the Cap. You can punch holes in the cap with the neoprene punch tool, or order a pre-punched cap
Besides standard caps we offer custom headcaps to fit every type of application. Contact us about the possibilities. .

HEADCAP SIZES AND OPTIONS

Available sizes	XXS	45-47 cm
	XS	49-51 cm
	S	52-54 cm
	M	56-58 cm
	L	60-62 cm

Option 1:
Pre-punched optode holes.

Option 2:
White optode marks

NIRS
Accessories

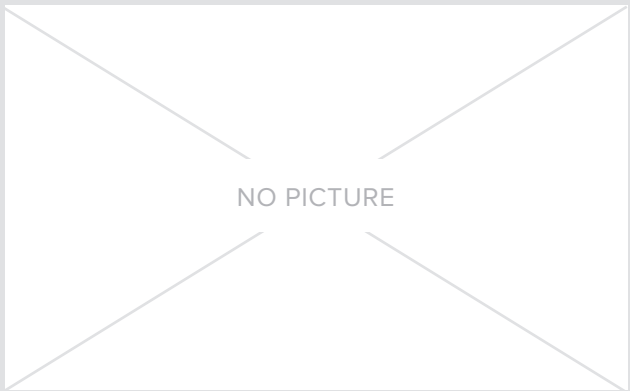
0107-00079-01 OPTODE HOLDER (SCREW)

Holder for single optode that can be used in our new neoprene headcap. Attach the fiber to the holder with a screw.

0107-00080-00 OPTODE HOLDER (PINCH)

Holder for single optode that can be used in our new neoprene headcap. Attach the fiber to the holder by simply pinching it. Works with the new fibers.

0107-00083-00 REF. CHANNEL HOLDER



Optode holder including reference channel.

0107-00085-00 NIRS EEG OPTODE HOLDER

Measures NIRS and EEG at the same location in a single holder.

OxyMon

Fibers

The customization of the OxyMon does not stop at the number of channels or optode template. For creating your ideal OxyMon system we have a selection of fibers to choose from.

1. **1- or 2-end fibers.** It is possible to have optical fibers with 1 end or 2 ends. This means that the fiber at the side of the subject is either split (2 ends) or unsplit (1 end). The advantage of a 2-end fiber is that a receiver or transmitter can be used at two locations at the same time; you create 2 receivers or 2 transmitters from 1. It is therefore possible to create more channels with the same OxyMon device.

2. **Straight- or 90°-end fibers.** We have fibers with a straight-end and fibers with an angle of 90° at the end. The 90°-end fibers are easier to use, the straight-end fibers have less light reduction. We advise the 90°-end fibers for most applications.

3. **3- or 10-meter fibers.** Our standard fibers are 3 meter. That is long enough for most research set-ups. We also have fibers with a length of 10 meter. These can be useful in certain situations, such as measurements in an MRI.

4. **Metal or plastic fiber ends.** We standardly deliver fibers with metal ends because these are the sturdiest. For measurements inside an MRI for example we also have fibers with plastic ends.

5. **Standard or customized fibers.** Cannot find your perfect fiber? The options for the fibers above are standard. You are always welcome to come with requests for customized fibers.

How to choose your fibers?

We have a selection of fibers to choose from to create your ideal OxyMon system

New fibertip!

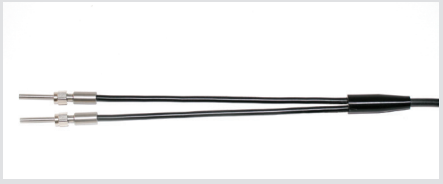
We have redesigned our fibertips to make them lighter, sturdier, and more comfortable for the subject. Their ergonomic grip makes them easy to use. The tip is made out of plastic, this makes all our new fibers compatible with electromagnetic fields.

New fibers

OxyMon side | Participant side

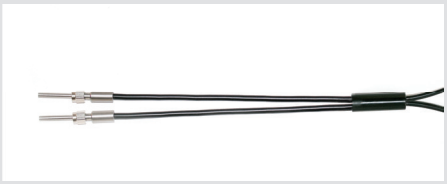
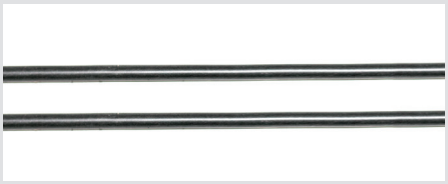
MOST USED

0105-00094-01



Transmitter | Total 3 or 10 meter | 1-end — 90°

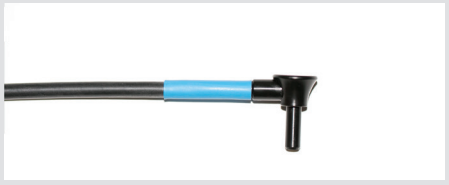
0105-00095-01


Transmitter | Total 3 or 10 meter | 2-end — 90°

0105-00090-01





Receiver | Total 3 or 10 meter | 1-end —90°

MOST USED

0105-00091-01



Receiver | Total 3 or 10 meter | 2-end — 90°

Standard fibers transmitters

OxyMon side | Participant side

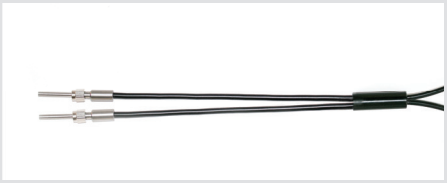
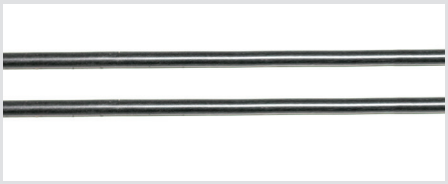
MOST USED

0105-00094-00



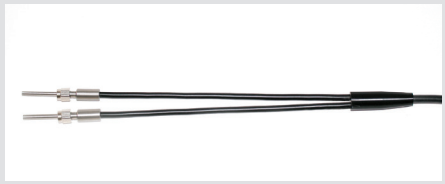
Transmitter | Total 3 meter | 1-end — 90°

0105-00095-00

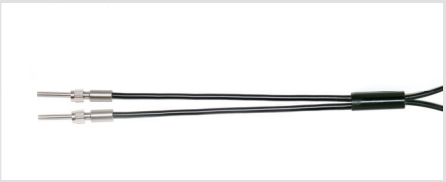

Transmitter | Total 3 meter | 2-end — 90°

0105-00096-00



Transmitter | Total 3 meter | 1-end —no angle

0105-00097-00



Transmitter | Total 3 meter | 2-end — no angle

Standard fibers receivers

OxyMon side | Participant side

0105-00090-00

Receiver

Total 3 meter

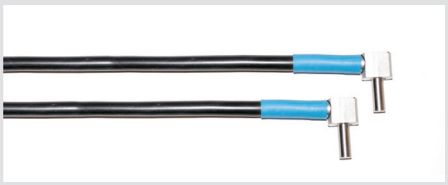
1-end — 90°

MOST USED

0105-00091-00

Receiver

Total 3 meter



2-end — 90°

0105-00092-00

Receiver

Total 3 meter

1-end —no angle

0105-00093-00

Receiver

Total 3 meter

2-end — no angle

NMR fibers transmitters

OxyMon side | Participant side

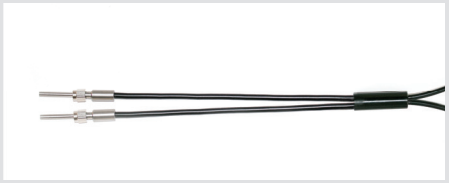
0105-00102-00

Transmitter

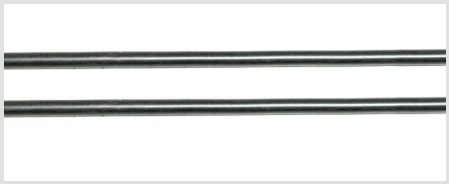
Total 10 meter

1-end — 90°

0105-00103-00



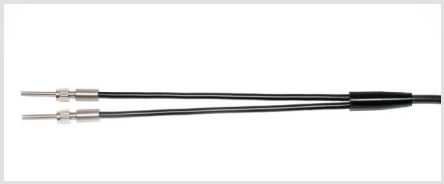
Transmitter



Total 10 meter

2-end — 90°

0105-00104-00

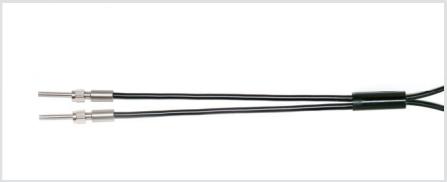


Transmitter

Total 10 meter

1-end —no angle

0105-00105-00



Transmitter

Total 10 meter

2-end — no angle

NMR fibers receivers

OxyMon side — Participant side

0105-00098-00



Receiver — Total 10 meter — 1-end — 90°

0105-00099-00



Receiver — Total 10 meter — 2-end — 90°

0105-00100-00



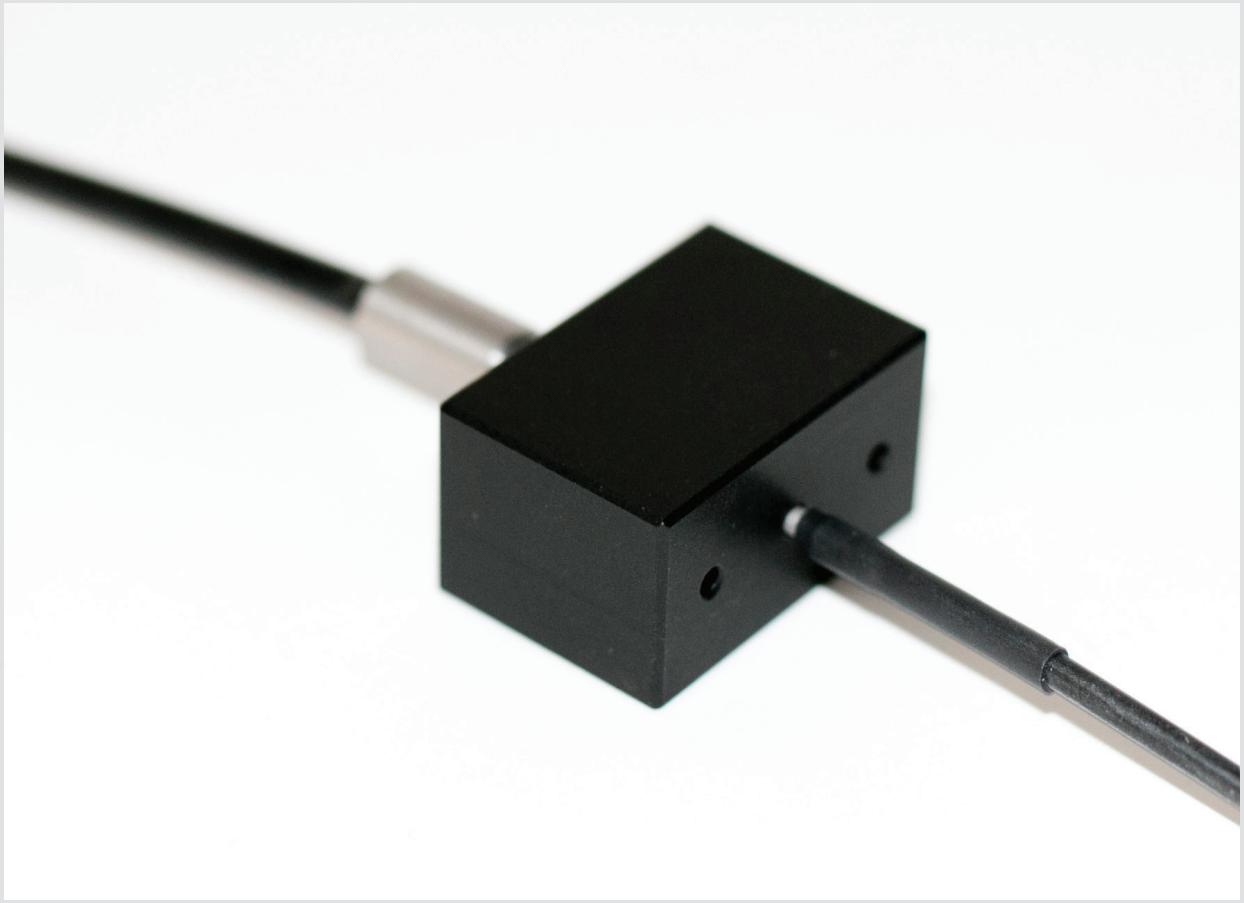
Receiver — Total 10 meter — 1-end —no angle

0105-00101-00



Receiver — Total 10 meter — 2-end — no angle

0105-00114-00



Fiber Adapter

The fiber adapter can be used to connect normal fibers to the extra small rodent fibers. These fibers are perfect for measurements on small animals.

Fibers

Fiber block side — Participant side

0105-00116-00

Transmitter — Total 1 meter — 1-end — 90°

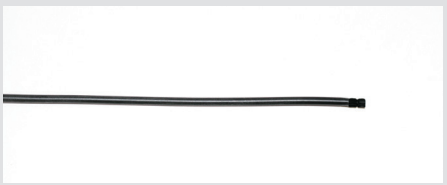
0105-00115-00

Transmitter — Total 1 meter — 1-end — no angle

ART. 00000

Transmitter — Total 1 meter — 1-end —90°

ART. 00000



Transmitter — Total 1 meter — 1-end — no angle

OxyMon
Accessories and extra's

0105-00110-00 8-CHANNEL REFERENCE FIBER

The 8-channel receiver reference fiber can be used to make a reference channel with each transmitter in a 24-channel OxyMon system.

0105-00107-00 METAL-SHIELDED RECEIVER

High transmittance fiber, sturdy design with metal shielding and straight ending for testing and calibration.

0105-00114-00 FIBER ADAPTER

The fiber block can be used to connect normal fibers to the extra small rodent fibers. These fibers are perfect for measurements on small animals.

0103-00290-00 FIBER COVER PROTECTION

These fiber covers can be used to cover a receiver from receiving light or to cover a transmitter emitting light. This can be useful when you only use 1 end of a split fiber, you can cover the other end.


ortinis
PortaSync

Oxymon accessories

0103-00045-00 AD INPUT BOX

The Analog Input Box is an external device working together with the all our NIRS systems. It has 16 analogue input ports which are sampled with the same frequency as the NIRS system. The data is stored in the same file as your NIRS data.

0103-00045-00 AD OUTPUT BOX

The Analog Output Box is an external device working together with the Oxymon. It gives as an output the concentration changes in terms of micromolar for oxy- and deoxyhemoglobin. The channel outputs are set according to the chosen measurement template in Oxysoft. An output change of 1 Volt will equal either 4 or 40 micromolar. The output box has 16 channels, enough for an 8-channel (1 cabinet) Oxymon system.

0104-00017-00 AD BOARD

This unit collects parallel to the sampling of the Oxymon data and in the same data file up to 8 physiological signals (-4V/+4V). The unit is built into the backend of the cabinet. The sampling frequency will be the same is the sampling frequency to which the oxygenation data are set.

0702-00029-00 PORTASYNC

Synchronize different types of instrumentation and the data files they produce. Connects wireless to the any of our NIRS instruments, including our wireless instruments. It can generate two signal levels in the NIRS data file, e.g. representing two types of events. These signals are also generated as an output to any external device you wish. Besides the output port the PortaSync also has one input port to be used to send a signal to Oxysoft.

0104-00173-00 OXYMON CART

Options:

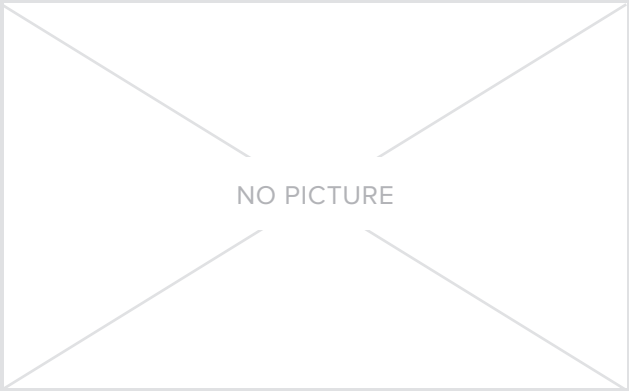
- Monitor
- Twin monitor
- FIber support (up to 8 fiber arms)
- More fiber supports/arms are also possible (for e.g. hyperscanning purposes)

OxyMon
Accessories

0103-00089-00 PARALLEL CABLE

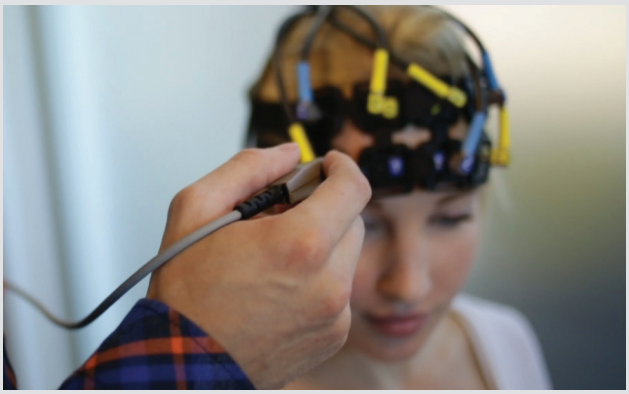
Parallel cable (LPT to BNC) to be combined with AD board or AD input box.

0103-00088-00 SERIAL CABLE



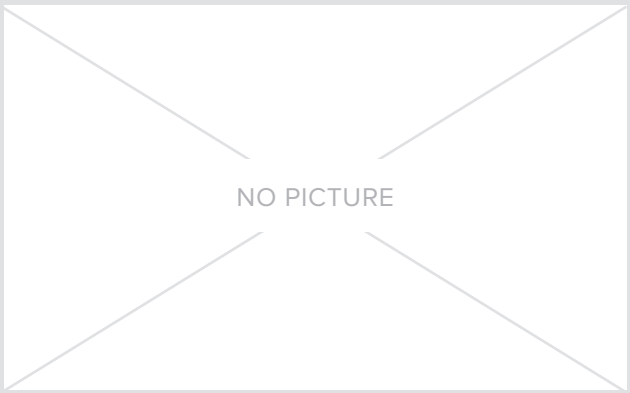
Serial cable (USB or RS-232 to BNC) to be combined with AD board or AD input box.

0902-00208-00 POLHEMUS PATRIOT



With the Polhemus you can precisely measure the position of the optodes on the subject's head. It works best in combination with the OxySoft 3D extension. The 3D software guides you through the digitizing process with an intuitive, built-in user-interface. OxySoft automatically stores the digitized positions of the optodes and visualizes them on the integrated 3D models.

0103-00052-00 OXYMON TSI CALIBRATION TOOL



Measure tissue saturation index with the OxyMon using the TSI calibration tool.

OxyMon
Services & options

OXYMON OPTIONS

Options

0103-00159-00	250 HZ UPGRADE The sampling rate of the OxyMon can be upgraded from the standard 50 Hertz to 250 Hertz.
-	CUSTOM FIBERS Please contact us for the possibilities to create custom made fibers If you can not find your type of fiber in this catalogue.

OXYMON SERVICES

Maintenance

BASIC MAINTENANCE
Basic maintenance includes: Preventive maintenance, phone support, software updates and 30% discount on repair.

FULL MAINTENANCE
Preventive maintenance, phone support, software updates, 30% discount on repair, 1 free repair (if possible) per fiber per year 50% discount if the fiber needs to be replaced. Defects seeking and repair, including spare parts.

Service

0110-00172-00

TRAINING AND/OR INSTALLATION
We can understand that some will need some help to get started with NIRS, while others already have experience. That is why we offer on-site training and/or installation separately from our devices. Of course, we find it important to get you off to a flying start and we offer competing prices for on-site training. If you like to travel, you are always welcome to visit our office for an introduction free of charge.

PORTABLE
NIRS DEVICES


artinis
23
brite

Brite^{23}

A wearable 23-channel NIRS device for the measurement of brain oxygenation.

Portable, User-friendly and Comfortable.

The Brite^{23} is a user-friendly, plug-and-play NIRS device with almost no set-up time. It works with multichannel LED's, giving you continuous and real-time feedback in our data analysis software that is delivered with the system. It has a sample rate of 100 Hertz.

With the Brite^{23} we enable you to monitor brain activity without the use of large intimidating scanners. The Brite^{23} research package makes monitoring oxygenation easy and accessible. Hyperscanning (monitoring multiple subjects at the same time) can be easily done, while our software enables you to combine different NIRS devices within one data stream. The soft neoprene headcap and the portability of the system makes monitoring the brain oxygenation status of elderly, children and vulnerable patients especially comfortable and easy.

Subjects are even able to perform physical activities like walking, running and climbing while the device is connected with bluetooth (>50 meters) to the laptop. The Brite^{23} has an integrated 9-axes movement sensor. It perfectly complements with our other portable NIRS devices e.g. for measuring muscle oxygenation.

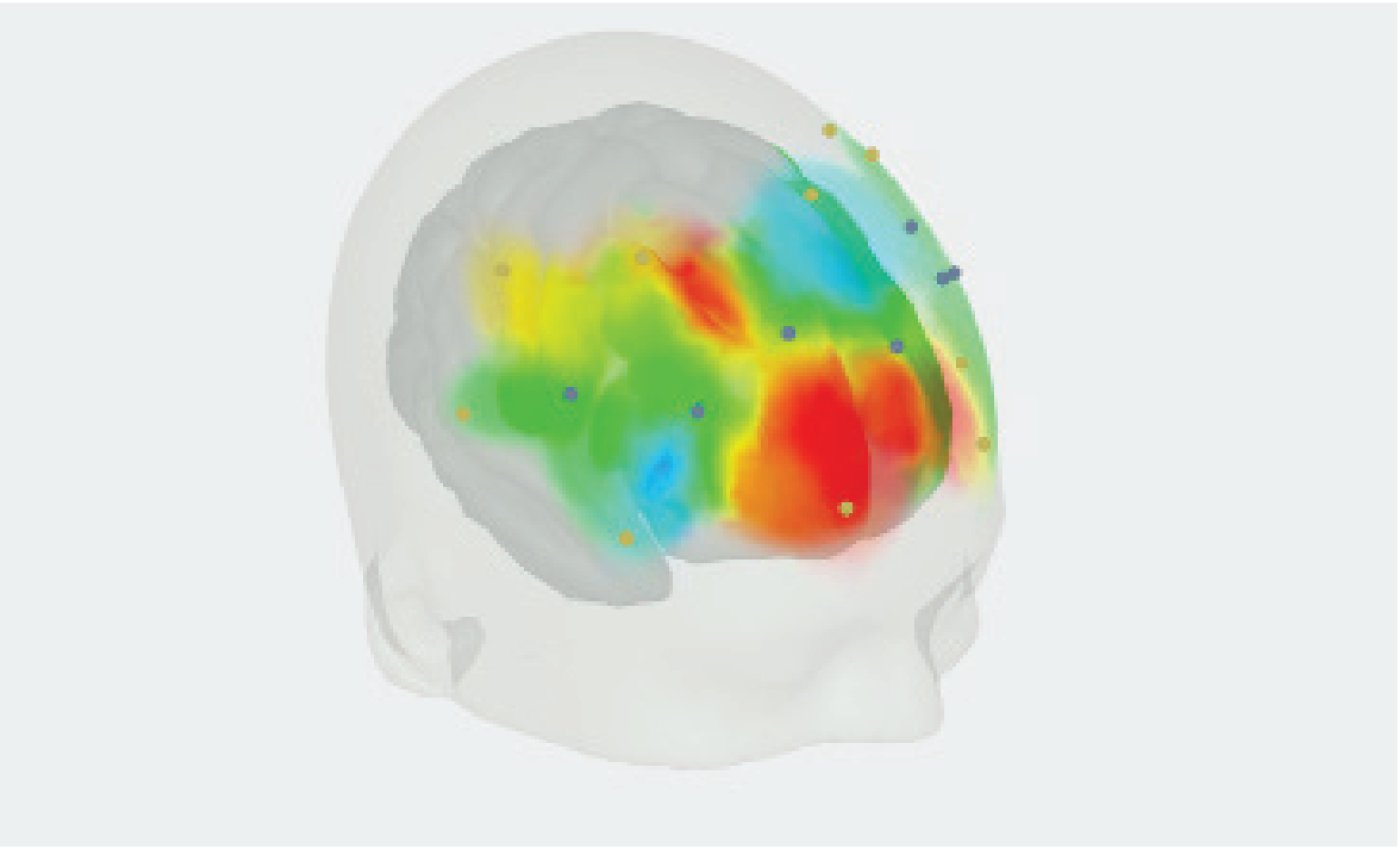
NIRS
Near **I**nfra**R**ed **S**pectroscopy is a non-invasive optical technique that can be used to continuously measure concentration changes of oxy- deoxy- and total hemoglobin in tissue.

fNIRS
Functional NIRS is the use of NIRS for the purpose of functional neuroimaging.

More info on pages 11-13.

APPLICATIONS
Initially the Brite was developed to measure the effect of cognitive interventions using portable and user-fiendly fNIRS. For a complete overview of all (f)NIRS publications performed with our equipment go to http://www.artinis.com/publications/.


T1
R1
R2
T3
T5




T2
R1
T3
Tx1
Tx3


artinis
23
brite

What's in the box?

- ☑ Brite[23]
- ☑ Laptop with pre-installed software
- ☑ Pelicase
- ☑ License key
- ☑ Bluetooth dongle
- ☑ Oxysoft, data analysis software
- ☑ User Guide
- ☑ Support in setting up your research

Questions about the Brite[23]?
Ask our application specialists.

ASKFORINFO@ARTINIS.COM

Technical Specifications

SPECS	**Description**
TECHNOLOGY	Continuous wave near infrared spectroscopy using modified Lambert-Beer law
MEASURES	Oxy-deoxy, total hemoglobin and tissue saturation
DATA ANALYSIS SOFTWARE	Oxysoft
OPERATING SYSTEM	Windows 7, 8, 10
LIGHT SOURCE	Light emitting diodes: 11x2 wavelengths
WAVELENGTHS	Standard nominal 760 and 850 nm, others possible
CHANNELS	23 channels
EVENTS	Insert online and offline events.
DETECTORS	7x Photo diode with ambient light protection
OPTODE DISTANCE	35mm
POWER	Rechargeable and fast loading battery, up to 3 hours on a single charge.
TOTAL WEIGHT	300 grams including battery
SIZE	Battery housing: 75x75x30 mm, headbands available in multiple sizes.
ENVIRONMENT	Operating temperature: ~ 10-35 °c
INTERFERENCE	No interference with EEG, ECG OR EMG


R1
T3


artinis
23
brite

OctaMon

A wearable 8-channel NIRS device for the measurement of brain oxygenation.

Portable, User-friendly and Comfortable.

The OctaMon is our portable 8-channel fNIRS device that can be used to measure oxygenation in the brain. It is the only truly portable fNIRS device currently on the market and designed to fit the prefrontal cortex perfectly. The distance between the receivers and transmitters is 35 mm.

The OctaMon is light-weight and very comfortable to wear. It is incredibly easy and quick to set up. The headband can be positioned on the head in less than a minute and the battery case is so small it fits your pocket. The OctaMon collects data online via a Bluetooth connection that enables the participant to go up to 100 meter away from the laptop. All these features make the OctaMon ideal for capturing brain activity while having the freedom to perform daily activities, including exercise.

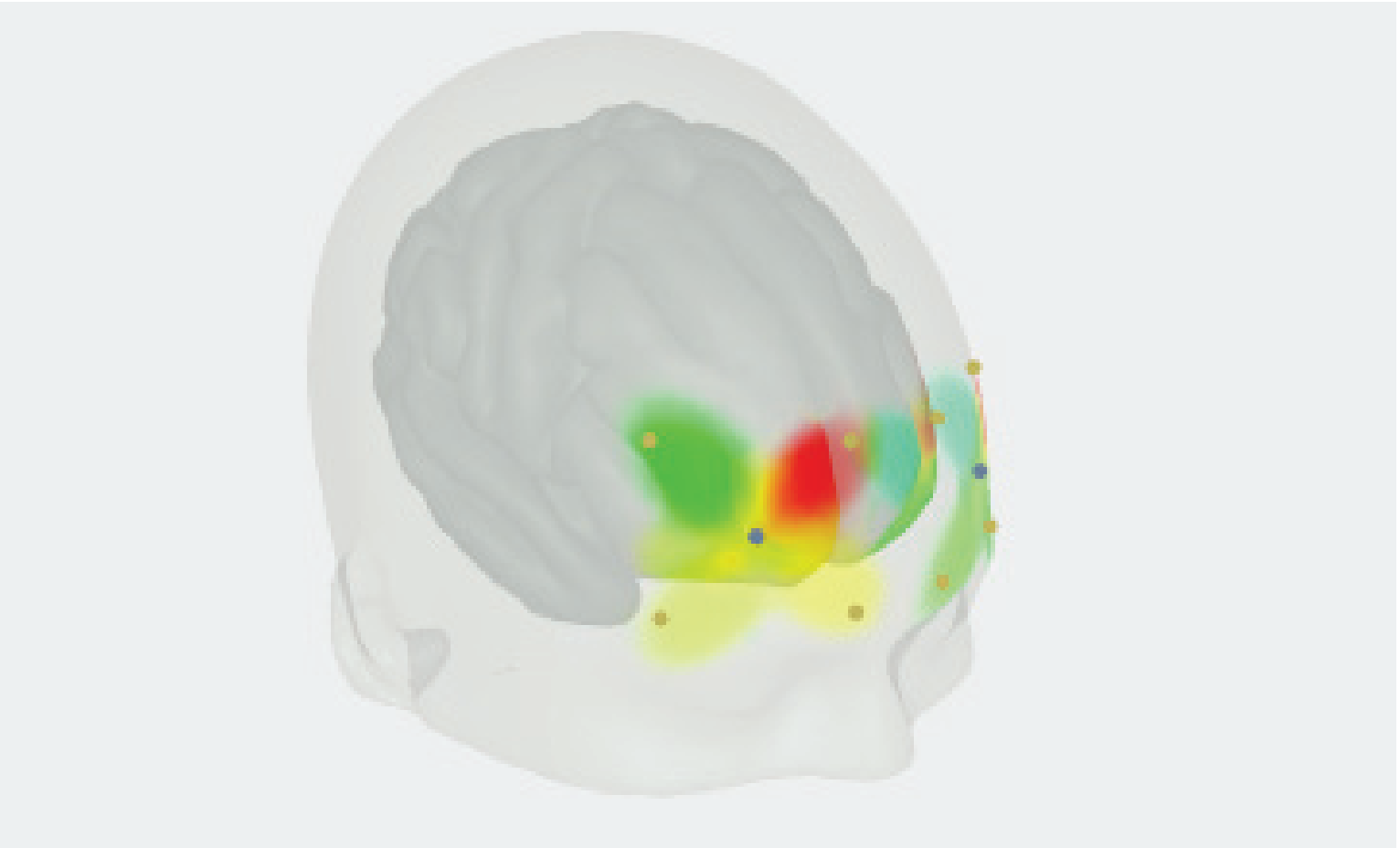
NIRS
Near **I**nfra**R**ed **S**pectroscopy is a non-invasive optical technique that can be used to continuously measure concentration changes of oxy- deoxy- and total hemoglobin in tissue.

fNIRS
Functional NIRS is the use of NIRS for the purpose of functional neuroimaging.

TSI
The **T**issue **S**aturation **I**ndex is the absolute percentage of oxygenated hemoglobin.

More info on pages 11-13.

APPLICATIONS
The OctaMon is ideally suited to investigate cognitive functions in the prefrontal cortex, such as working memory or attention. It is also of interest for studying neuropathological disorders such as Alzheimer's disease or ADHD. For a complete overview of all (f)NIRS publications performed with our equipment go to http://www.artinis.com/publications/.



What's in the box?

- ☑ OctaMon
- ☑ Laptop with pre-installed software
- ☑ Yellow Pelicase
- ☑ License key
- ☑ Bluetooth dongle
- ☑ Oxysoft, data analysis software
- ☑ Batteries and charger
- ☑ User Guide
- ☑ Support in setting up your research

Questions about the OctaMon?
Ask our application specialists.

ASKFORINFO@ARTINIS.COM

Technical Specifications

SPECS	Description
TECHNOLOGY	Continuous wave near infrared spectroscopy using modified Lambert-Beer law
MEASURES	Oxy-deoxy, total hemoglobin and tissue saturation
DATA ANALYSIS SOFTWARE	Oxysoft
OPERATING SYSTEM	Windows 7, 8, 10
LIGHT SOURCE	Light emitting diodes: 8x2 wavelengths
CHANNELS	8 channels
WAVELENGTHS	Standard nominal 760 and 850 nm, others possible
EVENTS	Insert online and offline events.
DETECTORS	Photo diode with ambient light protection
OPTODE DISTANCE	35mm
POWER	Up to 6 hours with one interchangeable and rechargeable battery.
TOTAL WEIGHT	230 grams including battery
SIZE	Battery housing: 84x54x20 mm, wire: 1.3 m headbands available in multiple sizes: XS: (OctaMon Mini) 48-50 cm S: 52 cm M: 56 cm L: 60 cm
ENVIRONMENT	Operating temperature: ~ 10-35 °c
INTERFERENCE	No interference with EEG, ECG or EMG

OctaMon mini

ART. 00000

OctaMon sensors

The OctaMon mini offers the same benefits as the OctaMon. It has 8 channels, fits the prefrontal cortex perfectly, is comfortable to wear and is incredibly easy to set up. The only difference is the smaller size of the headband and smaller optode distances. Its size and ease of use makes the OctaMon mini perfect for pediatric research.

What's in the box?

- ☑ OctaMon mini
- ☑ Laptop with pre-installed software
- ☑ Yellow Pelicase
- ☑ License key
- ☑ Bluetooth dongle
- ☑ Oxysoft, data analysis software
- ☑ Batteries and charger
- ☑ User Guide
- ☑ Support in setting up your research

Questions about the OctaMon mini?
Ask our application specialists.

ASKFORINFO@ARTINIS.COM

Technical Specifications

SPECS	Description
TECHNOLOGY	Continuous wave near infrared spectroscopy using modified Lambert-Beer law
MEASURES	Oxy-deoxy, total hemoglobin and tissue saturation
DATA ANALYSIS SOFTWARE	Oxysoft
OPERATING SYSTEM	Windows 7, 8, 10
LIGHT SOURCE	Light emitting diodes: 8x2 wavelengths
WAVELENGTHS	Standard nominal 760 and 850 nm, others possible
CHANNELS	8 channels
EVENTS	Insert online and offline events.
DETECTORS	Photo diode with ambient light protection
OPTODE DISTANCE	25mm
POWER	Up to 6 hours with one interchangeable and rechargeable battery.
TOTAL WEIGHT	210 grams including battery
SIZE	Battery housing: 84x54x20 mm, wire: 1.3 m headbands available in multiple sizes: XS: (OctaMon Mini) 48-50 cm S: 52 cm. Other sizes available.
ENVIRONMENT	Operating temperature: ~ 10-35 °c
INTERFERENCE	No interference with EEG, ECG OR EMG

PortaLite

A wearable NIRS device for the measurement of brain and muscle oxygenation.

Light-weight, Wearable and User-friendly.

The PortaLite is our wearable NIRS device that can be used to measure oxygenation in muscle and brain tissue. It has a flexible sensor to fit both the curvature of the head and the smaller muscles. The PortaLite has three channels in one location and can therefore not only provide relative hemoglobin concentrations but also TSI.

The distance between the receivers and its three transmitters is 30, 35 and 40 mm, so the PortaLite measures between 15 and 20 mm deep into the tissue. The PortaLite, with its 88 grams and probe of 58 x 28 x 6 mm, is one of the smallest NIRS devices on the market. Despite its small size, it has a stunning sampling rate of 50 Hertz. This combination makes it truly unique.

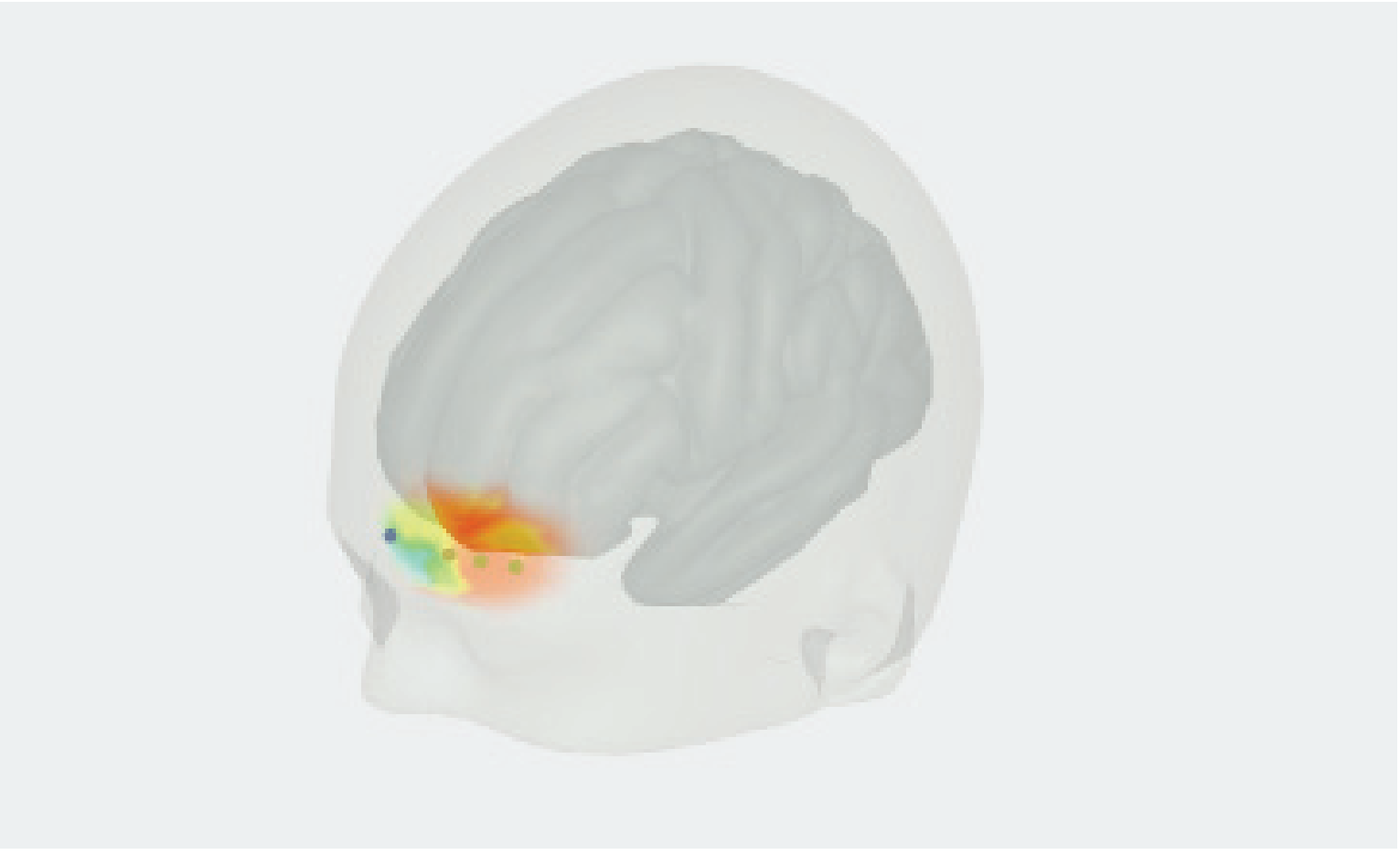
The PortaLite can collect data in two ways; online via Bluetooth and offline through an internal storage. This makes it a perfect device for measurements in the lab and in the field. A third possibility is to store the data on our Android app.

NIRS
Near **I**nfra**R**ed **S**pectroscopy is a non-invasive optical technique that can be used to continuously measure concentration changes of oxy- deoxy- and total hemoglobin in tissue.

TSI
The **T**issue **S**aturation **I**ndex is the absolute percentage of oxygenated hemoglobin.

More info on pages 11-13.

APPLICATIONS
The PortaLite is used for example in single channel brain oxygenation measurements during exercise, in dual tasking, to detect epileptic seizures and to measure the effect of hypoxia while climbing the highest volcano of the world. For a complete overview of all (f)NIRS publications performed with our equipment go to http://www.artinis.com/publications/.



What's **in the box?**

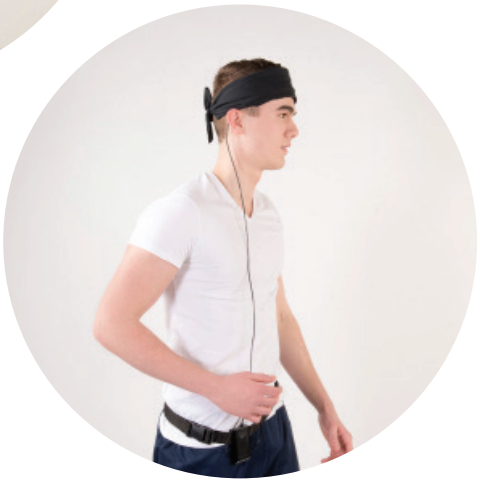
- ☑ PortaLite
- ☑ Laptop with pre-installed software
- ☑ Yellow Pelicase
- ☑ License key
- ☑ Bluetooth dongle
- ☑ Oxysoft, data analysis software
- ☑ Batteries and charger
- ☑ Stickers and bandages
- ☑ User Guide
- ☑ Support in setting up your research

Questions about the PortaLite?
Ask our application specialists.

ASKFORINFO@ARTINIS.COM

Technical Specifications

SPECS	**Description**
TECHNOLOGY	Continuous wave near infrared spectroscopy using modified Lambert-Beer law
MEASURES	Oxy-deoxy, total hemoglobin and tissue saturation
DATA ANALYSIS SOFTWARE	Oxysoft
OPERATING SYSTEM	Windows 7, 8, 10
LIGHT SOURCE	Light emitting diodes: 3x2 wavelengths
WAVELENGTHS	Standard nominal 760 and 850 nm, others possible
CHANNELS	1 channel to measure absolute oxygenated hemoglobin percentage, 3 channels to measure relative concentrations.
EVENTS	Insert online and offline events.
DETECTORS	Photo diode with ambient light protection
OPTODE DISTANCE	Three distances are used between receiver and transmitters: 30,35 and 40 mm.
POWER	Up to 8 hours with one interchangeable and rechargeable battery. Upgradable up to 16 hours.
TOTAL WEIGHT	88 grams including battery
SIZE	Battery housing: 84 x 54 x 20 mm, Wire: 1.3 m, Probe: 58 x 28 x 6 mm.
ENVIRONMENT	Operating temperature: ~ 10-35 °c
INTERFERENCE	No interference with EEG, ECG OR EMG



PortaLite mini

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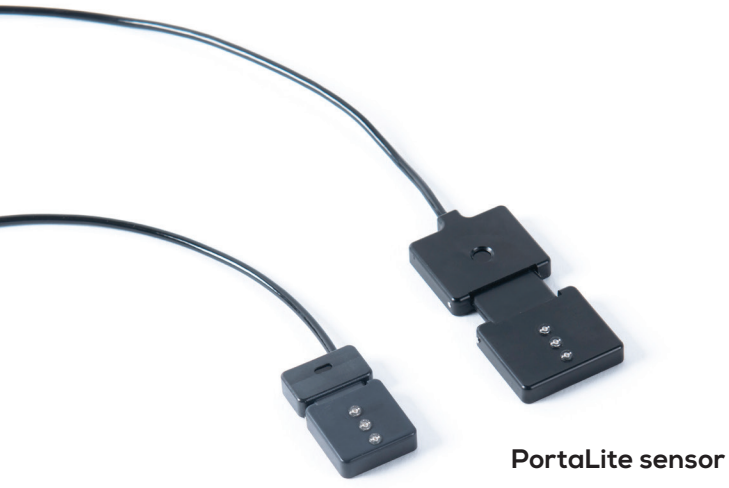


PortaLite sensor

PortaLite mini sensor

The PortaLite mini offers the same benefits as the PortaLite. It is light-weight, wearable and can measure both the relative hemoglobin concentrations and the TSI in muscle and brain. The only difference is the smaller size of the sensor (34 by 20 by 5 mm). Its size makes the PortaLite mini perfect for measurements on for example the head of a small infant or on smaller muscles like the ones found in the neck.

What's in the box?

- ☑ PortaLite mini
- ☑ Laptop with pre-installed software
- ☑ Yellow Pelicase
- ☑ License key
- ☑ Bluetooth dongle
- ☑ Oxysoft, data analysis software
- ☑ Batteries and charger
- ☑ Stickers and bandages
- ☑ User Guide
- ☑ Support in setting up your research

Questions about the PortaLite mini?
Ask our application specialists.

ASKFORINFO@ARTINIS.COM

Technical Specifications

SPECS	Description
TECHNOLOGY	Continuous wave near infrared spectroscopy using modified Lambert-Beer law
MEASURES	Oxy-deoxy, total hemoglobin and tissue saturation
DATA ANALYSIS SOFTWARE	Oxysoft
OPERATING SYSTEM	Windows 7, 8, 10
LIGHT SOURCE	Light emitting diodes: 3x2 wavelengths
WAVELENGTHS	Standard nominal 760 and 850 nm, others possible
CHANNELS	1 channel to measure absolute oxygenated hemoglobin percentage, 3 channels to measure relative concentrations.
EVENTS	Insert online and offline events.
DETECTORS	Photo diode with ambient light protection
OPTODE DISTANCE	The PortaLite Mini uses 1 receiver and three transmitters, 16, 21 and 26 mm from the receiver
POWER	Up to 8 hours with one interchangeable and rechargeable battery. Upgradable up to 16 hours.
TOTAL WEIGHT	80 grams including battery
SIZE	Probe: 40, 20, 5 mm. Wire: 1.3 m. Battery housing 84X54X20 mm
ENVIRONMENT	Operating temperature: ~ 10-35 °c
INTERFERENCE	No interference with EEG, ECG or EMG

PortaMon

The gold-standard wireless NIRS device for the measurement of muscle oxygenation.

Light-weight, Wireless and User-friendly.

The PortaMon is our portable NIRS device that is especially designed to measure oxygenation in muscle tissue. It is currently the gold-standard in scientific research. It has three channels in one location and can therefore not only provide relative hemoglobin concentrations but also the TSI.

The distance between the receivers and its three transmitters is 30, 35 and 40 mm, so the PortaMon measures between 15 and 20 mm deep into the tissue.

The PortaMon can collect data in three different ways. For an online measurement, it uses a Bluetooth connection. You can go up to 150 meter away from the laptop, very useful when the subject is on a running track for example.

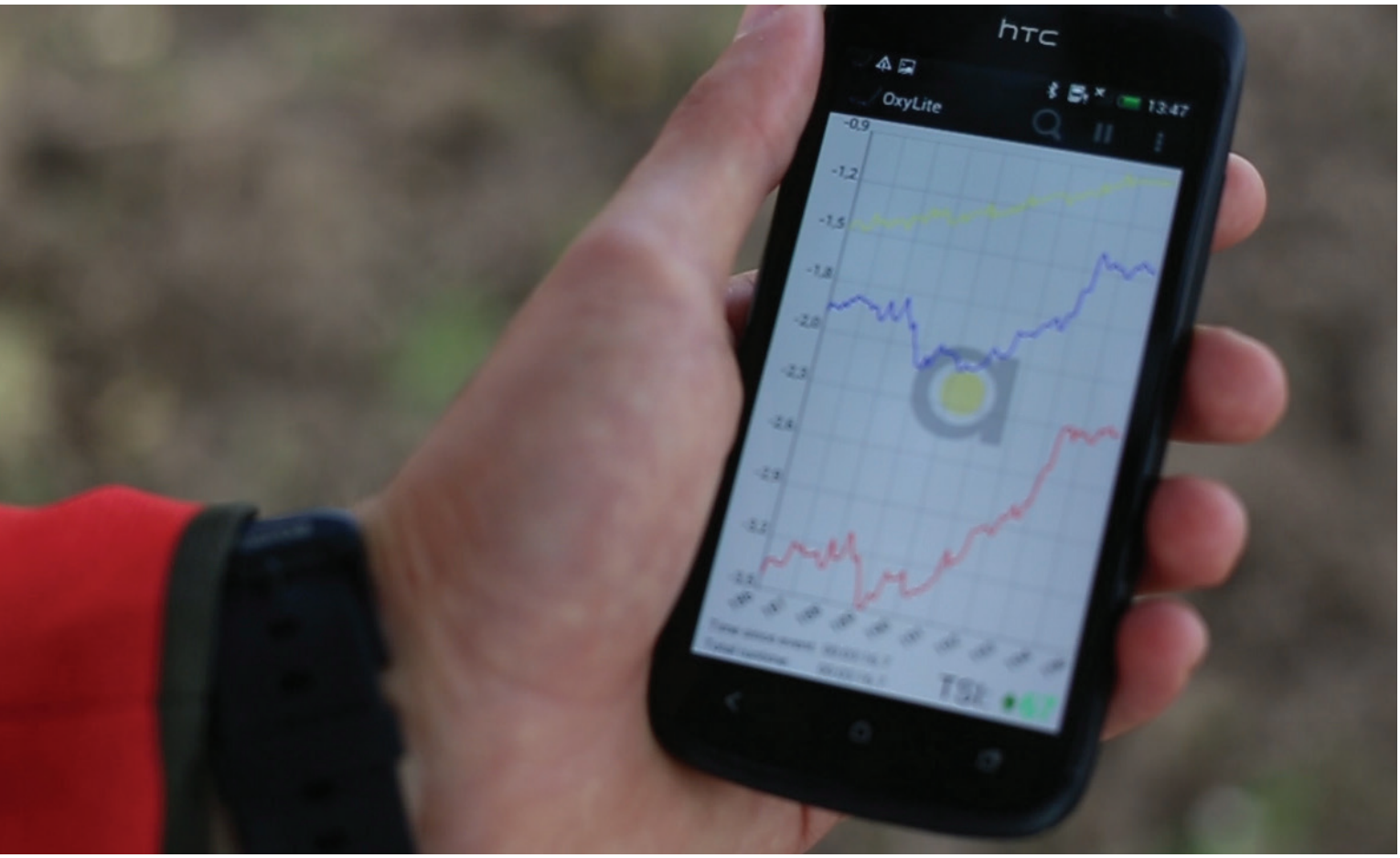
For larger distances the PortaMon can measure offline and store up to 50 hours of data internally. The data can be easily downloaded after the experiment. A third possibility is to store the data on our Android app.

NIRS
Near **I**nfra**R**ed **S**pectroscopy is a non-invasive optical technique that can be used to continuously measure concentration changes of oxy- deoxy- and total hemoglobin in tissue.

TSI
The **T**issue **S**aturation **I**ndex is the absolute percentage of oxygenated hemoglobin.

More info on pages 11-13.

APPLICATIONS
The PortaMon is mainly used for sport science, but also for example in rehabilitation, mitochondrial function and urology research. For a complete overview of all (f)NIRS publications performed with our equipment go to http://www.artinis.com/publications/.


htc
OxyLite
13:47

What's in the box?

back **front**

- ☑ PortaMon
- ☑ Laptop with pre-installed software
- ☑ Yellow Pelicase
- ☑ License key
- ☑ Bluetooth dongle
- ☑ Oxysoft, data analysis software
- ☑ Batteries and charger
- ☑ Stickers and bandages
- ☑ Sleeves and dark cloth
- ☑ User Guide
- ☑ Support in setting up your research

Questions about the PortaMon?
Ask our application specialists.

ASKFORINFO@ARTINIS.COM

Technical Specifications

SPECS	**Description**
TECHNOLOGY	Continuous wave near infrared spectroscopy using modified Lambert-Beer law
MEASURES	Oxy-deoxy, total hemoglobin and tissue saturation
DATA ANALYSIS SOFTWARE	Oxysoft
OPERATING SYSTEM	Windows 7, 8, 10
LIGHT SOURCE	Light emitting diodes: 3x2 wavelengths
WAVELENGTHS	Standard nominal 760 and 850 nm, others possible
CHANNELS	1 channel to measure absolute oxygenated hemoglobin percentage, 3 channels to measure relative concentrations.
EVENTS	Insert online and offline events.
DETECTORS	Photo diode with ambient light protection
OPTODE DISTANCE	Three distances are used between receiver and transmitters: 30,35 and 40 mm.
POWER	Up to 8 hours with one interchangeable and rechargeable battery. Upgradable up to 16 hours.
TOTAL WEIGHT	75 grams including battery
SIZE	WXDXH: 83.8 x 42.9 x 17.2 mm
ENVIRONMENT	Operating temperature: ~ 10-35 °c
INTERFERENCE	No interference with EEG, ECG OR EMG

NIRS accessories

0103-00045-00 AD INPUT BOX

The Analog Input Box is an external device working together with the all our NIRS systems. It has 16 analogue input ports which are sampled with the same frequency as the NIRS system. The data is stored in the same file as your NIRS data. The AD input box is capable of collecting very fast signals of up to 80 Hz signals. The range of this system is +/5 Volt.

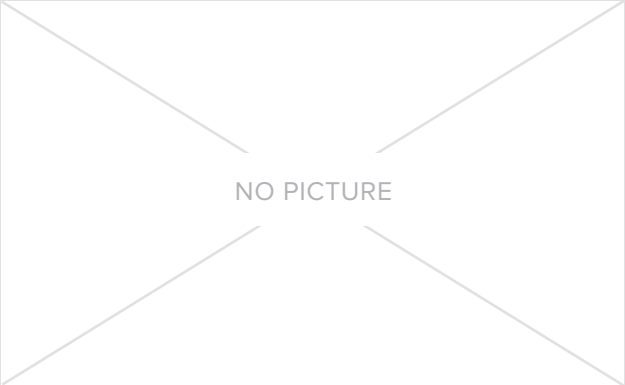
0103-00089-00 PARALLEL CABLE

Parallel cable (LPT to BNC) to be combined with AD board or AD input box

0702-00029-00 PORTASYNC

Synchronize different types of instrumentation and the data files they produce. Connects wirelessly to the any of our NIRS instruments, including our wireless instruments. It can generate two signal levels in the NIRS data file, e.g. representing two types of events. These signals are also generated as an output to any external device you wish. Besides the output port the PortaSync also has one input port to be used to send a signal to Oxysoft.

0103-00088-00 SERIAL CABLE



Serial cable (USB or RS-232 to BNC) to be combined with AD board or AD input box.

NIRS
Accessories

0203-00152-00 BATTERY

Additional recharchable battery

0203-00153-00 BATTERY CHARGER

Battery charger usable for all the Artinis NIRS devices (except OxyMon).

0203-00154-00 BLUETOOTH ANTENNA

Standard bluetooth antenna.

0203-00155-00 L-R BLUETOOTH RECEIVER

With the long-range bluetooth receiver you can extend the standard range of the bluetooth receiver from 80 to 120 meter in the open field.

NIRS accessories

0203-00354-00 PM CHILDREN MUSCLE ADAPTER

The bottom of the PortaMon is flat. This adapter offers add some curvature to the bottom to better fit the curvature of smaller arms or legs.

0201-00023-00 PORTAMON UNIT

Additional unit + 2 batteries.

0103-00157-01 LICENSE KEY

Extra license key.

0401-00026-00 OCTAMON UNIT

Additional unit + 2 batteries.

NIRS
Accessories

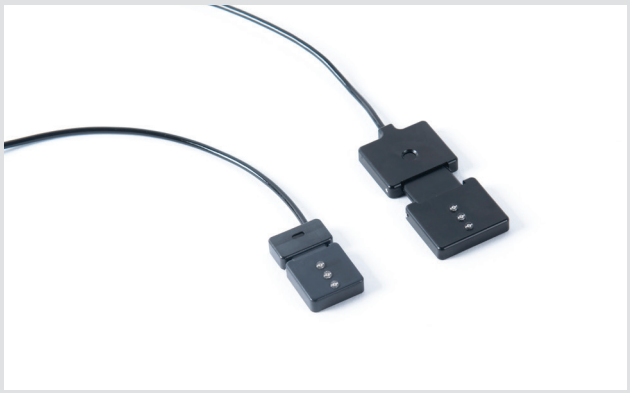
0301-00024-00 PORTALITE UNIT

Additional unit + 2 batteries.

0303-00166-00 PORTALITE REEL

This reel can be used to safely store the PortaLite.

0301-00025-00 PORTALITE MINI UNIT



Additional unit + 2 batteries.

0401-00298-00 OCTAMON MINI UNIT

Additional unit + 2 batteries.

NIRS accessories

OCTAMON SPARE PARTS

Options

0404-00180-00	OCM SPARE RECEIVER OPTODE
0404-00179-00	OCM SPARE TRANSMITTER OPTODE
0404-00180-01	OCM MINI SPARE RECEIVER OPTODE
0404-00179-00	OCM MINI SPARE TRANSMITTER OPTODE

0406-00141-00	OCM HEADBAND The standard size is M. XS, S and L are also available.
0406-00353-00	OCTAMON FULL HEADBAND This package includes an OctaMon headband, 2 receivers and 8 transmitters.

NIRS services

NIRS OPTIONS AND PACKAGE DEALS

Options

0203-00355-00	3D ACCELEROMETER It is possible to include a 3D accelerometer inside the PortaMon.
0304-00181-00	DOUBLE BATTERY LIFE PORTALITE We offer the possibility to double the battery life of the PortaLite.
0404-00288-00	DOUBLE BATTERY LIFE OCTAMON We offer the possibility to double the battery life of the OctaMon.

Package deals

0202-00175-00	EXTENSION PACKAGE DEAL For PortaMon, PortaLite and OctaMon. This package contains a long range antenna, a spare Bluetooth receiver, an additional license key, 2 additional batteries and recalibration for a discounted price.
0202-00176-00	XXL PACKAGE DEAL This is applicable for our single and double packages with PortaMon and/or PortaLite. The package includes a larger case and a Laptop with pre-installed software upgrade to 15 inch.

NIRS SERVICES

Maintenance

First year full maintenance is included. This offer is for each additional year.

BASIC MAINTENANCE

- Yearly checkup of the instrument.
- Yearly calibration.
- Possibly damaged components are replaced free of charge.
- If needed new firmware is installed.

FULL MAINTENANCE

First year full maintenance is included.
This offer is for each additional year.

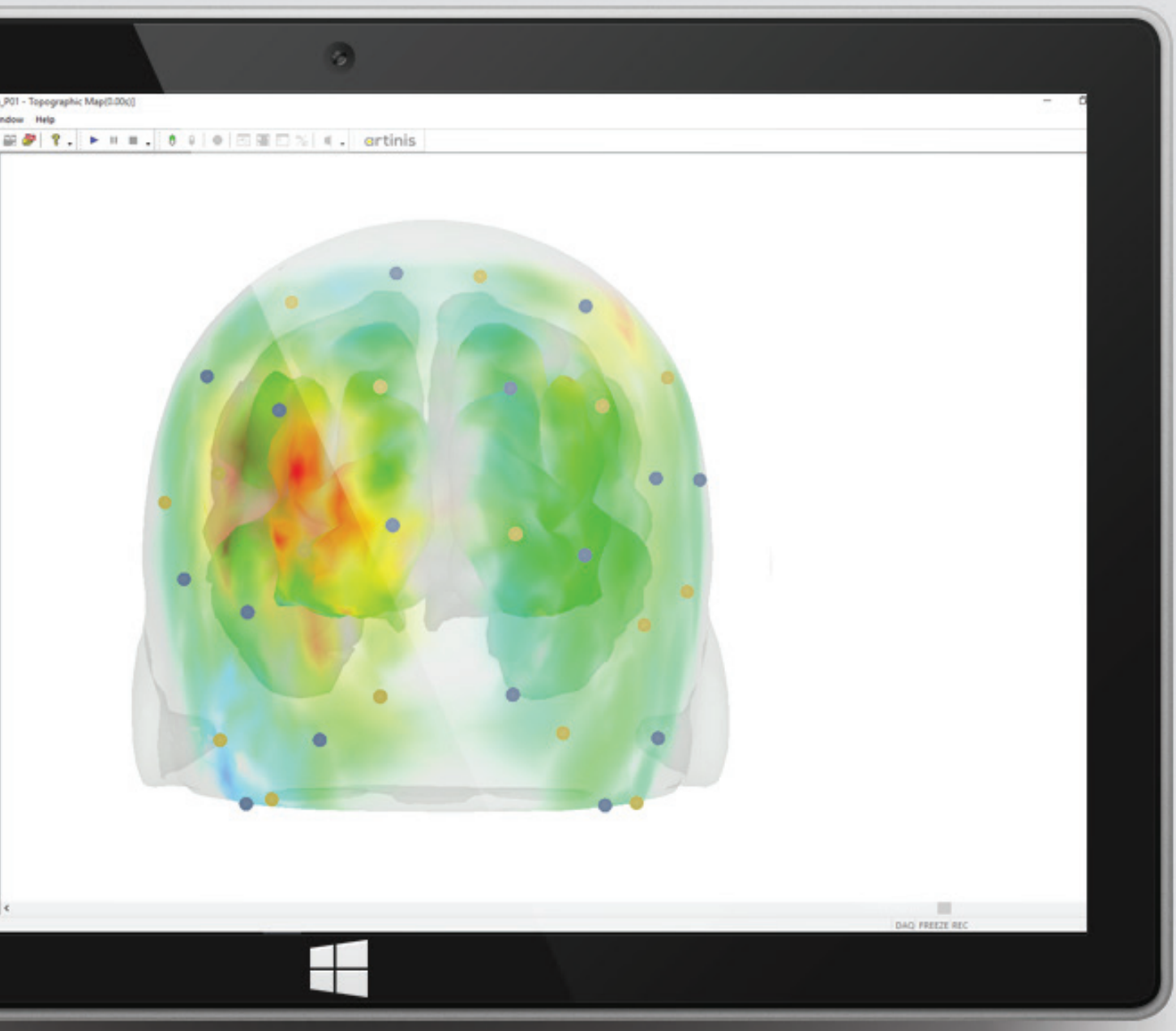
- Basic maintenance.
- Updates of the oxysoft analysis software. helpline, either by email, phone or by taking over your computer remotely and show you the various tricks of data analysis.

Service

0110-00172-00

TRAINING AND/OR INSTALLATION

We can understand that some will need some help to get started with NIRS, while others already have experience. That is why we offer on-site training and/or installation separately from our devices. Of course, we find it important to get you off to a flying start and we offer competing prices for on-site training. If you like to travel, you are always welcome to visit our office for an introduction free of charge.

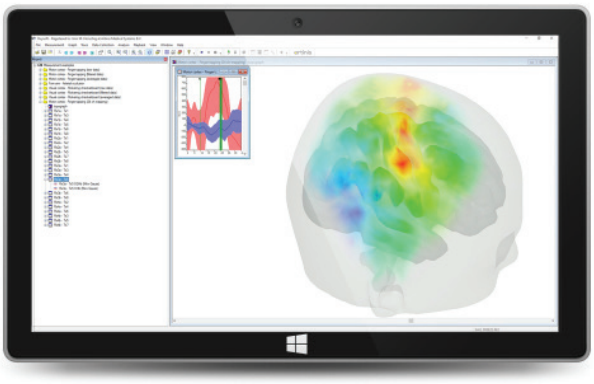

artinis

ANALYSIS
SOFTWARE

Oxysoft with PortaMon
Example of data displayed in OxySoft with the PortaMon.

Oxysoft with PortaLite
Example of data displayed in OxySoft with the PortaLite.

Oxysoft with OctaMon
Example of data displayed in OxySoft with the OctaMon.



Oxysoft with the OxyMon
Example of data displayed in OxySoft with the OctaMon.

OxySoft update

We offer the possibility to update Oxysoft to the latest version.

OxySoft

Data analysis software

All our NIRS devices include our software, OxySoft. This software is developed by Artinis and highly customizable to individual requirements. OxySoft provides in real-time the relative concentrations of oxy-, deoxy-, total hemoglobin and the TSI, an absolute percentage of oxygenated hemoglobin. It can connect up to 7 of our NIRS products at the same time. All data is synchronized and stored in one data file.

Data can be analyzed in 3 different ways.

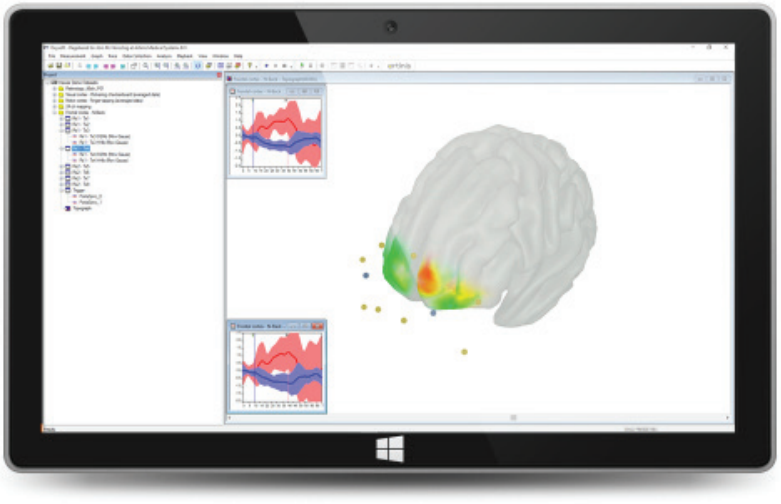
1. With OxySoft you can collect, store, view, insert events and analyze your NIRS data. It supports functional NIRS measurements and offers a variety of standard analysis techniques, such as averaging, filtering and statistical analyses.

2. All data can be exported to standard formats, such as text or excel.

3. A MATLAB script is provided, which allows importing your data obtained from OxySoft directly into several MATLAB toolboxes such as Homer2, NIRS-SPM or FieldTrip.

3D visualization of your data

Visualize your data on 3D models of the brain with a built-in, intuitive user-interface for the Polhemus fasttrack device that automatically stores the digitized positions of the optodes.



Questions about OxySoft?
Ask our application specialists.

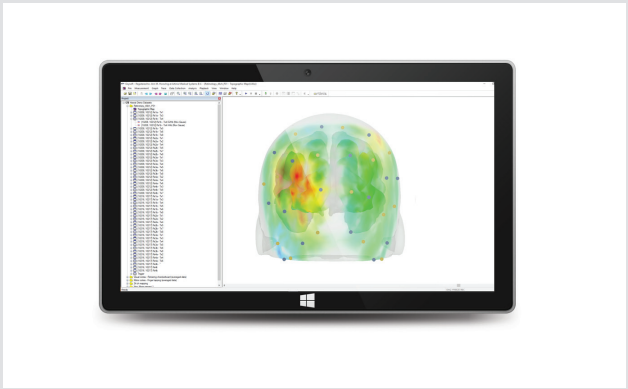
ASKFORINFO@ARTINIS.COM

Technical Specifications

- Data collection
- Import and export of Oxymon data files
- Exporting can be to a text file, Microsoft Excel or XML
- Import and scaling of data acquired via the optional analog input channels
- Importing of data files collected with other instruments
- Re-sampling of data
- Filtering of data using various types of filters
- Viewing of data
- Calculating average, mean, standard deviation, and regression
- Calculating differences between selected time-frames
- Calculation of oxygen consumption, blood flow, venous saturation, and arterial saturation
- Calculating averages of (block) stimuli (for functional NIR studies), including detrend function
- Generating events from external inputs, very useful for functional NIRS studies
- Preparing two-dimensional plots
- Preparing videos of the 2-D plots, e.g. for presentations. Very useful for brain mapping!
- Comparing between traces
- Files are collected within one project - analysis can be setup for all files simultaneously
- New files are easily added
- Original data sets are always unaffected
- Realtime data export to Matlab and other software
- Offline data export to Matlab and Matlab based (SPM) software packages
- Synchronisation to other software and devices

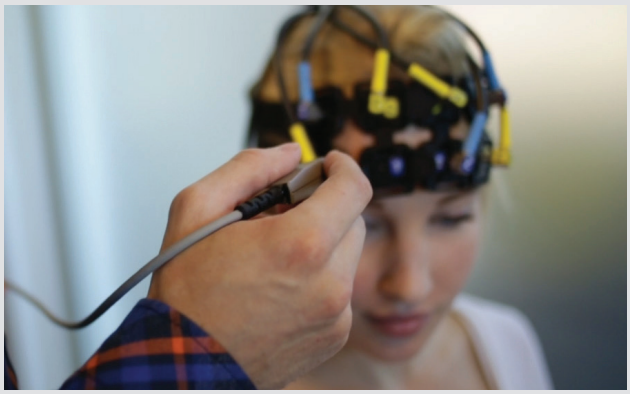
OxySoft
Extensions

0103-00158-00 3D SOFTWARE EXTENSION



With the OxySoft 3D extension you can visualize your data on 3D models of the brain or head. They are based on the widely used MNI templates. The 3D software was designed to optimize your measurement protocol, better review your results and to support your neuroscience publication.

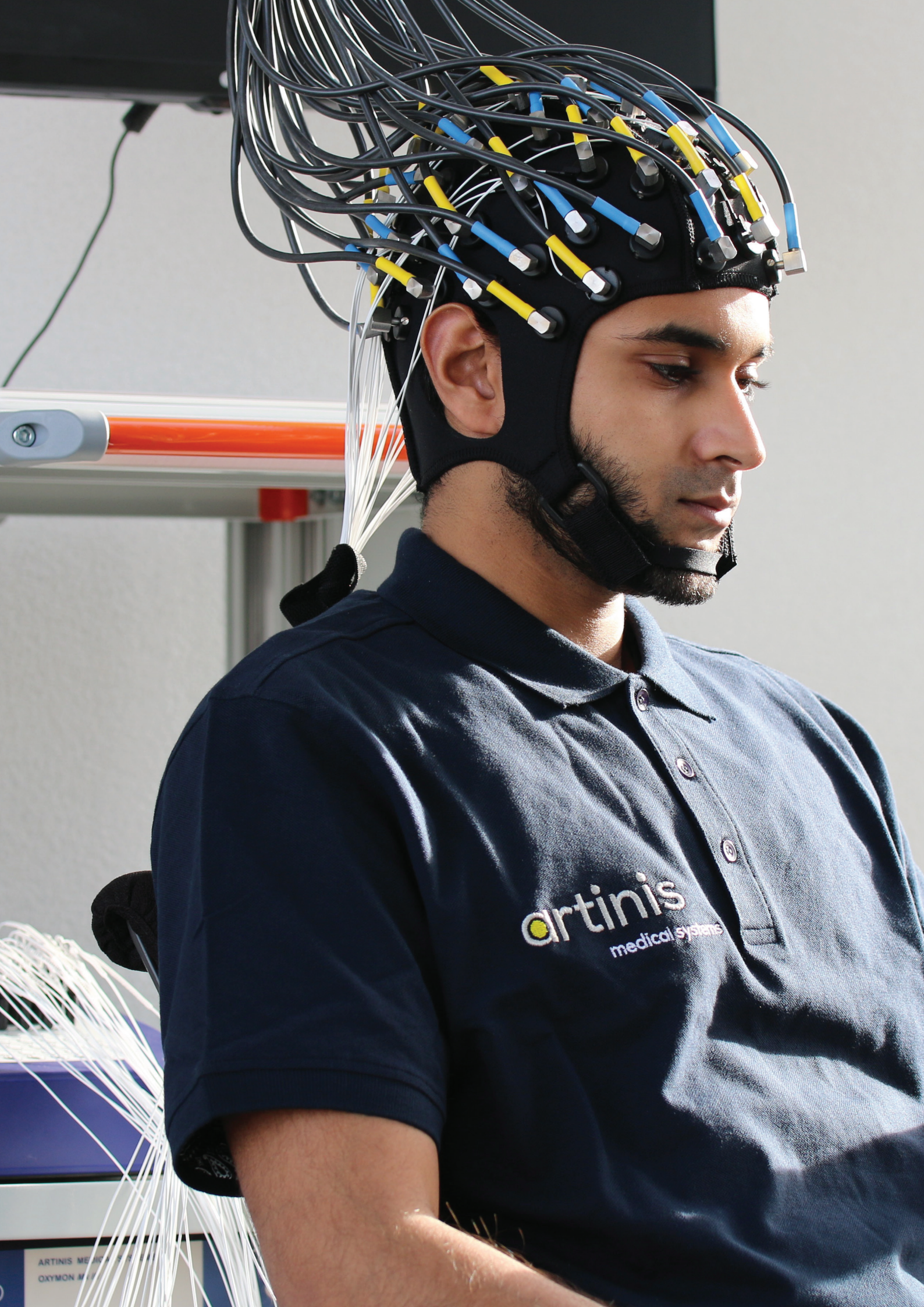
0902-00208-00 POLHEMUS PATRIOT



With the Polhemus you can precisely measure the position of the optodes on the subject's head. It works best in combination with the OxySoft 3D extension. The 3D software guides you through the digitizing process with an intuitive, built-in user-interface. OxySoft automatically stores the digitized positions of the optodes and visualizes them on the integrated 3D models.

0103-00157-01 SOFTWARE LICENSE KEY

We stardardly include 1 license key with our products. It is possible to buy extra license keys to be able to work with OxySoft on more computers.


artinis
medical systems

MULTIMODAL

NIRS

NIRS EEG package

Description	Electroencephalography (EEG) and NIRS both offer information about brain function, complementing each other in their ability to resolve information about the spatial and temporal characteristics of neural activity. The electrical potentials in brain tissue can be measured by EEG with high temporal resolution. NIRS measures the changes in oxygenation and blood volume, which reflects a different aspect of neural activity with high spatial information. Our NIRS equipment does not interfere with EEG signals. It is possible to combine head caps for EEG and our NIRS devices. We offer various methods to synchronise with other modalities, please contact us for all the possibilities.
Specifications	Combined EEG/NIRS headcap and integrated software. No interference with the EEG signal. Combine the OxyMon, PortaLite or OctaMon with an EEG system.
Options	Starting from 16 channels (EEG)

Questions about the NIRS/EEG package?
Ask our application specialists.

ASKFORINFO@ARTINIS.COM

Fully integrated NIRS EEG software, caps and holders!

Insert EEG electrode

Easy to insert EEG gel before and during measurement

Combined NIRS EEG optode holder

EEG PACKAGE OPTIONS

0802-00192-00	TMSi REFA 32 channel EEG package, 2kHz
0802-00193-00	TMSi REFA 64 channel EEG package, 2kHz
0802-00194-00	TMSi REFA 128 channel EEG package, 2kHz
0802-00195-00	TMSi REFA 32 channel EEG package, 4kHz
0802-00196-00	TMSi REFA 64 channel EEG package, 4kHz
0802-00197-00	TMSi REFA 32 channel EEG package, 10kHz
0802-00198-00	TMSi Porti16 channel EEG package, 2kHz
0802-00199-00	TMSi Porti 32 channel EEG package, 2kHz
0802-00200-00	TMSi Mobita 32 channel EEG package 2kHz
0803-00203-00	TMSi EEG only headcap
0803-00204-00	TMSi Ag/AgCl sintered ring electrode
0803-00206-00	TMSi ExG shielded carbon cable (bipolar)
0803-00207-00	TMSi Pre-gelled disposable electrodes (pack of 50)

EEG
Accessories and options

0807-00289-00 EEG HOLDER

TMSi ring electrode EEG holder compatible with our neoprene headcap.

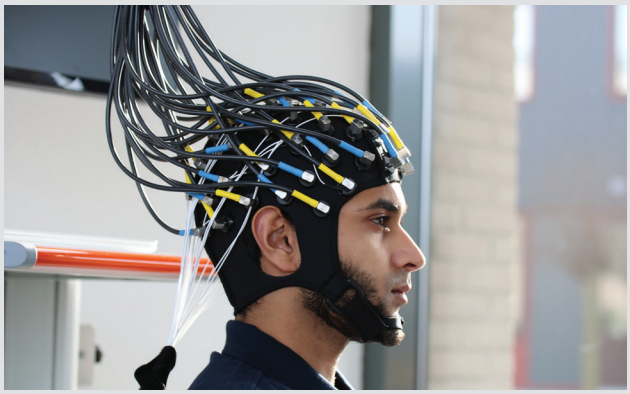
0107-00085-00 NIRS EEG OPTODE HOLDER

Measures NIRS and EEG at the same location in a single holder.

0103-00205-00 ARTINIS/TMSI PIN ELECTRODE

Artinis/TMSi pin electrode.

NEOPRENE HEADCAP



Neoprene EEG headcap. Available in multiple sizes.

NIRS EMG package

Description	NIRS EMG package.
Specifications	Integrated NIRS/EMG software. Combine the OxyMon, PortaLite or PortaMon with an EMG system. No interference with the EMG signal.
Options	Starting from 2 channels (EMG)

Questions about multimodality?
Ask our application specialists.

ASKFORINFO@ARTINIS.COM

NIRS Eye tracking

Description

Eye tracking and NIRS combine both the gaze points and the hemodynamic response of the brain. The focus and fixations of the eyes can be assessed up to hundreds of times per second using an eye tracker. It is possible to combine eye tracking with all of our NIRS-devices. We work together with Tobii Pro trackers, however, other fit for purpose solutions are available too. A wide range of eye-trackers are available; from fixed screen systems with high measuring frequency to fully portable glasses-based systems for field testing. We offer various methods for synchronization of eye-tracking data with NIRS-data. Please contact us for more information to see what the best solution is for you.

Specifications

Combine NIRS data with eye tracking

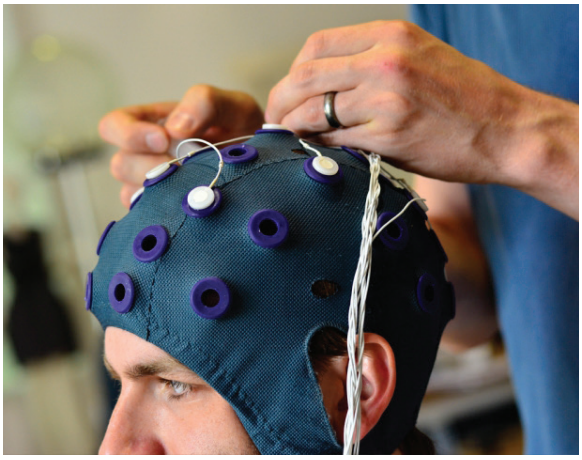
Compatible with all our NIRS devices

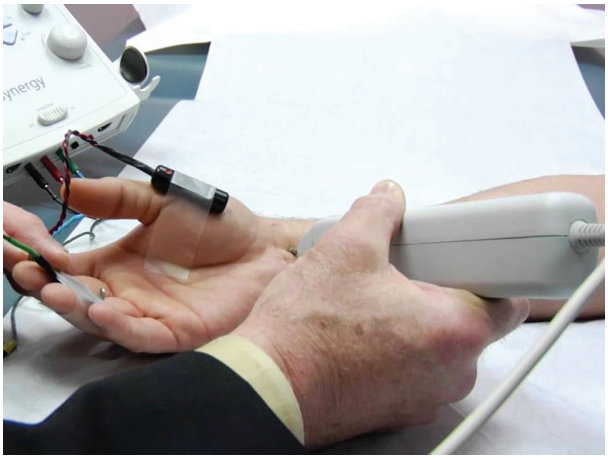
Options

Fixed screen system: 150-600 Hz

Portable glasses system: 50-100 Hz

NIRS Compatibility





To be compatible with other techniques we offer various extensions and/or accessories such as extra long fibers for MRI. Our NIRS systems are designed to be combined without any interference together the following techniques: EEG, TDS, TMS, TDCS, EMG and more.

Notes

NIRS Distributors Network

Worldwide Distribution of our products.

NIRS Distributors Network

Worldwide Distribution of our products.

Asia

China

Advictor
Suite 2106
C4 Building
Olympic Media Village
100101 CHaoyang District
Beijing, China
www.advictor.net

Contact: Mrs. T. Sun
terrys@advictor.com.cn
Tel: +86 10 64826310
Fax: +86 84828917

South Korea

BIOTECH
Address : #207-1406 ,
248 Hancheon-ro, Dongdaemun-gu,
Seoul, Korea
Zip Code : 02512
T. 82-2-2212-7416

Contact:
biotech.chaos@gmail.com
sales@bio-tech.co.kr
www.bio-tech.co.kr

Taiwan

MicroStar Instruments
1F-1 No.9 Lane 6
Liyuan 1st Street
Linkou 244
Taipei, Taiwan

Contact: Mr. Roger Lien
Tel: +886 2 8667 4661
Fax: +886 2 86674662
microstarins@gmail.com
www.microstarins.com

Japan

ArchiveTips, Inc.
6-7-1 Prendre301,
Nishi-Nippori, Arakawa-ku
Tokyo, Japan

For contact please visit:
http://archivetips.com/contact

South Korea

Kwangwon Medical. Co
4F Yoo-il B/D 200-29
Seongsan-Dong Mapo-Gu
Seoul 121-250, Korea
www.kwangwonmedical.com

Contact: Mrs. J. Lee
kwangwon9907@unitel.co.kr
Tel: +82 2 374 9538
(+82 2 511 9538)
Fax: +82 2 374 9537

India

Hospimedica Group
Leelawati House, 58/10,
Ashok Nagar,
New Delhi - 110018, India
www.hospimedicaintl.com

Contact: Mr. Sanjay Das
mail@hospimedica.in
Tel: +91 11 25146164/65, 25138165
Fax: +91 11 25492977, 251381647

Malaysia

Naman Technology
No. 30-3, Jalan PJU 5/11,
Dataran Sunway, Kota Damansara,
47810 Petaling Jaya,
Selangor, Malaysia

Contact: Sarah Naman
Tel: +6(03) 2302 2982
Fax: +6(03) 2788 3502
sales@namantechnology.com
www.namantechnology.com

Singapore

BES Technology Pte Ltd.
19A Lichfield Road
Singapore 556839

Contact:
Eva Goh
Tel. +65 9855 4643
eva.goh@bestech.com.sg

North America

USA

Cortech Solutions, Inc
1409 Audubon Blvd., Suite B1
Wilmington, NC 28403
www.cortechsolutions.com

Contact: Mr. E. Nelson
enelson@cortechsolutions.com
Tel: +1 910 362 1143
Fax: +1 910 378 3443

Europe

Scandinavia

MEQnordic A/S
Bygaden 51A
4040 Jyllinge,
Denmark

Contact: Mr. Torben Fuglsang
Mob. +45 27 79 09 90
tf@meqnordic.com

Switzerland

NEUROLITE AG
Hühnerhubelstrasse 79
3123 Belp
Switzerland

Contact: Mr. Florent Crépin
T +41(0)31 812 28 28
F +41(0)31 812 28 29
M +41(0)79 476 12 96
www.neurolite.ch/en

Netherlands

Artinis Medical Systems
Einsteinweg 17,
6662 PW Elst,
The Netherlands
hello@artinis.com
T. +31 (0) 481350980

Italy

GEA soluzioni
Via Orvieto n° 19
10149
Torino, Italy

Contact: Giorgio Tonon
T. (+39) 011 5821948
F. (+39) 011 0433281
M. (+39) 345 7092499
info@geasoluzioni.it
www.geasoluzioni.it

Appendix

OxyMon Channel specifications

LAYOUTS	MIN R-UNITS	MIN T-UNITS	# R 2-END	#R1-end	#T 2-end	#T 1-end
1X 1 CHANNEL	1	1	0	1	0	1
2X 1 CHANNEL	1	2	1	0	0	1
1X 2 CHANNEL	1	2	0	1	0	1
4X 1 CHANNEL*	2	2	2	0	2	0
4X 1 CHANNEL	2	4	2	0	0	4
8X 1 CHANNEL*	4	4	4	0	4	0
8X 1 CHANNEL	4	8	4	0	0	8
1X 4 CHANNEL SQUARE	2	2	0	2	0	2
1X 8 CHANNEL	2	4	0	2	2	2
2X 4 CHANNEL SQUARE	2	4	2	0	0	4
2X 4 CHANNEL CROSS	2	4	0	2	4	0
1X 12 CHANNEL	3	4	2	1	0	4
2 X 7 CHANNEL	3	6	3	0	0	6
1X 17 CHANNEL	4	6	2	2	0	6
2X 8 CHANNEL	4	6	0	4	0	6
2X 10 CH OVAL	4	8	0	4	8	0
1X 24 CH DIAMOND**	4	8	2	2	4	4
2X 10 CH L-SHAPE	4	8	4	0	0	8
2X 10 CH LONG	4	8	4	0	0	8
1X 24 CHANNEL	4	8	4	0	0	8
4X 4 CHANNEL SQUARE	4	8	4	0	0	8

Common layouts

In the table below you will find how many receivers and transmitter units you require to use a certain optode layout. The table also contains information about what fibers you will need to use these layouts.
We have specific holders for almost each layout. Only few can only be used on headcaps or on rubber. If you have a specific wish for a custom holder, please do not hesitate to ask us.

TSI layouts

LAYOUTS	MIN R-UNITS	MIN T-UNITS	# R 2-END	#R1-end	#T 2-END	# T 1-END	TSI_T_2-END	TSI_T_1-END	R_Ref fiber
1 CH	1	2	0	1	0	0	0	2	0
2 CH	2	2	0	2	0	0	2	0	0
4 CH	2	3	0	2	0	0	3	0	0
2xTSI FF	3	4	0	3	0	0	2	2	0
8 CH	3	6	0	3	0	0	3	3	0
12 CH	4	6	0	4	0	0	0	6	0

Reference channel layouts

LAYOUTS	MIN R-UNITS	MIN T-UNITS	# R 2-END	#R1-end	#T 2-END	# T 1-END	TSI_T_2-END	TSI_T_1-END	R_Ref fiber
1 CH	2	1	0	1	0	1	0	0	1
2 CH	2	2	1	0	0	2	0	0	1
4 CH	3	4	2	0	0	4	0	0	1

NOTE1: x Receiver fiber, 2-end can be replaced by (2x R fiber, 1-end and an extra receiver unit in the Oxymon). Same applies for transmitters. This will improve the signal.

NOTE2: 2-end fibers can be used as 1-end BUT other unused end must be covered well. Using 2-ends instead of 1-ends does reduce SNR.

NOTE3: Lay-outs can also be formed with number of Receivers and Transmitter inversed, but usually not possible with number of Receivers and Transmitters in the Oxymon.

NOTE4: We standard deliver our holders with metal screws. We can also deliver them with plastic screws in case you would like them in a MRI scanner.

Artinis NIRS products are intended to be used for research applications only. Our products are not sold as Medical Device as defined in EU directive 93/42/EEC. Our products are not designed or intended to be used for diagnosis or treatment of disease.

Artinis Medical Systems
Einsteinweg 17, Elst, Netherlands+31481350980

All specifications may change without further notice. Ref. 1704