ADINSTRUMENTS

ML325 Animal Oximeter Pod
Pod Series

Description

The Animal Oximeter Pod allows the non-invasive measurement of the oxygen saturation of arterial haemoglobin (SpO_2) using a suitable Animal-Clip, Tail-Wrap or Base Sensor transducer. The Oximeter Pod produces an oxygen saturation reading between 70 and 100% without the need to perform any other scaling, or can display a photo plethysmograph pulse signal.

System Compatibility

The Animal Oximeter Pod connects to any PowerLab hardware units with Pod ports (8-pin DIN inputs). PowerLab and MacLab (except 4s, 8s and 16s) units without Pod ports require the FE305 Pod Expander.

The Animal Oximeter Pod is supported by the following versions of ADInstruments software:

WINDOWS	MACINTOSH
• LabChart v6 or later	• LabChart v6 or later
• Chart v3.4.8 or later	• Chart v3.6.3 or later
• Scope v3.6.3 or later	• Scope v3.6.3 or later

Note: Earlier software versions do not support Pods.
Visit our website for information on operating system requirements.

Transducer Compatibility

The Animal Oximeter Pod is designed to operate with the MLT323 Animal-Clip, MLT324 Tail-Wrap, MLT325 Base Sensor transducers, or other transducers manufactured by Nonin. It should not be used with non-Nonin SpO_2 transducers as damage or inaccurate readings may result.

Applications

The Animal Oximeter Pod is suitable for the measurement of oxygen saturation in the range 70 to 100 %, or to display a pulsatile waveform.

Theory of Operation

The Animal Oximeter Pod is designed to measure the arterial haemoglobin saturation (SpO_2) in pulsatile tissue by applying short pulses of light from light emitting diodes in the transducer. The light is emitted through the tissue at two different wavelengths and the SpO_2 is calculated using the levels of transmitted and the received light. The Animal Oximeter Pod displays an analog output voltage that is proportional to the oxygen saturation, or the pulse.

Operating Instructions

Connect the transducer to the 9 pin D-type connector on the rear of the Oximeter Pod. Connect the 8-pin DIN cable from the rear of the Oximeter Pod to a PowerLab Pod Port. Do not connect other devices such as a Front-ends or Instruments to the same BNC connector on the channel input that the Pod is connected to. A Pod can be connected to the PowerLab unit while LabChart or Scope is running, but not when recording data. Once detected, the Input Amplifier dialog is replaced with the Oximeter Pod dialog (Shown below).
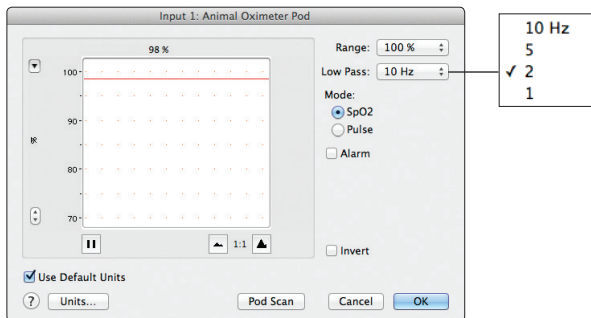
The Animal Oximeter Pod window showing expected signals when in SpO₂ and pulse mode (above and right respectively).
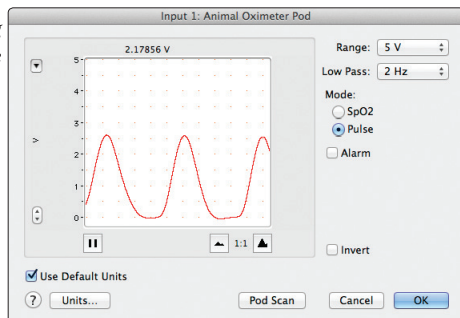
Using the Oximeter Pod

Plug in the Animal-Clip or Tail-Wrap transducer to the Animal Oximeter Pod, run LabChart or Scope software and start recording. The Oximeter Pod is pre-calibrated to read in %SpO_2. The scale is fixed between 70 – 100 %SpO_2 but can be adjusted by either stretching the vertical axis or using the Set Scale feature.

The displayed SpO_2 is a moving average determined from the previous four heart beats and updated on a beat-by-beat basis. There is a delay before the signal appears while an average is determined. If no pulse is detected then the reading will drop to 70% (corresponding to a loss of signal).

Much lower SpO_2 signal levels are expected in animals than in humans. Recording from people using the Animal Oximeter Pod could result in a situation where the signal appears normal whereas a human oximeter would alarm with a low signal. Consequently the pulse signal may go out-of-range when attached to person.

If the Alarm check box is enabled then:
- a continuous beep indicates low SpO_2 (<70%)
- groups of three short beeps indicates sensor is not connected
- continuous stream of short beeps indicates invalid SpO_2 reading

Transducers

Animal Clip and Tail Wrap transducers connect directly to the 9-pin socket on the rear of the Oximeter Pod.

MLT323 SpO₂ Animal Clip *MLT324 SpO₂ Tail Wrap*

MLT325 SpO₂ Base Sensor

Stacking and Unstacking Pods

Pods stack by clicking into place on top of each other. To separate stacked Pods, push the top Pod towards the back and then pull them apart from the back. See picture on right.

Caution

Read "Statement of Intended Use" on our website or in "Getting Started with PowerLab" before use. The Oximeter Pod is designed to operate only with ADInstruments approved Animal clip or tail wrap transducers. The Oximeter Pod should not be used with any other type of SpO_2 transducer as damage or inaccurate readings may result. The Oximeter Pod may also be used with transducers manufactured by Nonin.

Specifications

Operating Principle:	Non-invasive blood oxygen saturation (SpO_2) determination using red and infrared light passed through pulsating blood in vascular tissue.
Saturation range:	70 – 100%
Accuracy (70 – 100% saturation):	±2% for adults using Finger clip sensor
	±4% of full scale using Ear clip sensor
Measurement wavelength:	Red (660 nm)
	Infrared (910 nm)
Measurement rate:	- 1 reading per second (SpO2 mode)
	- 75 samples per second (pulse mode)
Range:	18-450 BPM
Output signal:	1.75 V for 98 %
Resolution:	1 % steps
Operating conditions:	0 – 35°C, 0 – 90 % humidity (non condensing)
SpO_2 acquisition time:	~5 second

All specifications were tested at the time of printing and are subject to change.

Ordering Information

Animal Use Only:

       ML325/AC Oximeter Pod (Animal Clip)

       ML325/AW Oximeter Pod (Tail Wrap)

       ML325/BS Oximeter Pod (Base Sensor)

Additional transducers may be ordered separately:

       MLT323 Animal Clip (Animal use only)

       MLT324 Tail Wrap (Animal use only)

       MLT325 Base Sensor (Animal use only)