ML317 EOG Pod

Pod Series

Description

The ML317 EOG Pod is a signal conditioner designed to record horizontal and vertical eye position and movement. The device features a manual DC offset and is supplied with three shielded lead wires with snap-on connectors.

System Compatibility

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

WINDOWS

- LabChart v6 or later
- Chart v3.4.8 or later
- Scope v3.6.3 or later

MACINTOSH

- LabChart v6 or later
- Chart 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.

Accessories

The Pod is supplied with three snap-on connector shielded lead wires which snap connect to conductive (Ag/AgCl) adhesive electrodes (MLA1010).

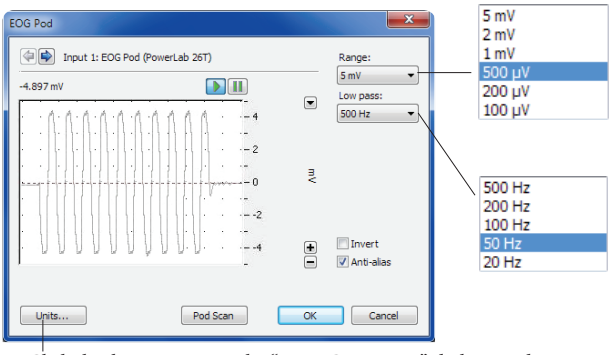
Applications

The EOG Pod is used to measure and display eye movement and position. In the human the EOG Pod can be used in the measurement of saccadic and pursuit eye movements. In addition, with the latest version of software, the EOG Pod can also be used for EGG studies.

Operating Instructions

Connect the 8-pin DIN cable from the EOG Pod to a PowerLab Pod port or a Pod port of a Pod Expander connected to the PowerLab. Do not connect other devices such as Front-ends or Instruments to the corresponding BNC connector on the channel used by the Pod. Pods can be connected to the PowerLab unit while LabChart, Chart or Scope software is running, but not when recording data. Once detected, the functions of the EOG Pod are combined with those of the PowerLab and software, replacing the Input Amplifier dialog with the EOG Pod (Figure 1).

Figure 1



Click this button to open the "Units Conversion" dialog window.

Theory of Operation

The EOG Pod is a DC coupled biopotential amplifier with a fixed low-pass filter (500 Hz) to remove high frequencies. On the front of the Pod, an offset knob is provided to remove DC drift. The offset control provides ±15 mV of offset range (at input) for all range selections.

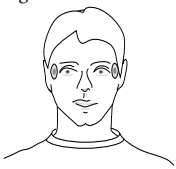
The EOG Pod utilizes the steady corneal-retinal potential in the detection of eye movement and position. This steady dipole may be used to measure eye position by placing surface electrodes to the left and right of the eyes (Figure 2). When the gaze is straight ahead, the steady dipole is symmetrically placed between the two electrodes, and the EOG output is approximately zero. When the gaze is shifted to the left, the positive cornea comes closer to the left electrode, which becomes more positive. There is an almost linear relationship between horizontal angle of gaze and EOG output (approximately ±30° of arc). Electrodes can also be placed above and below the eye to record vertical eye movements and using two EOG Pods, simultaneous vertical and horizontal eye movements can be measured (Figure 3).

Stacking and Unstacking Pods

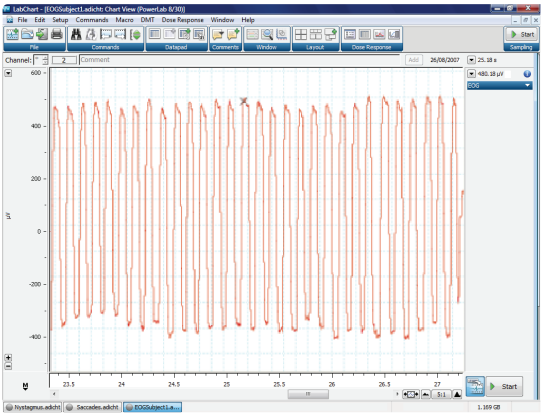
Pods stack by clicking into place on top of each other. To separate stacked Pods, push the top Pod towards the back and then pull them apart from the back. See picture on right.

Typical Data

Figure 2

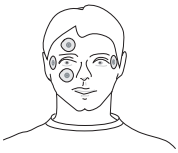


Electrodes placed on the left and right side of the eyes. The reference electrode was placed on the back of the neck.

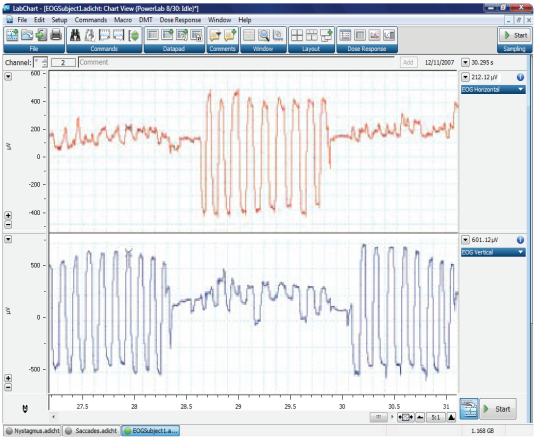


A recording of horizontal eye movements.

Figure 3



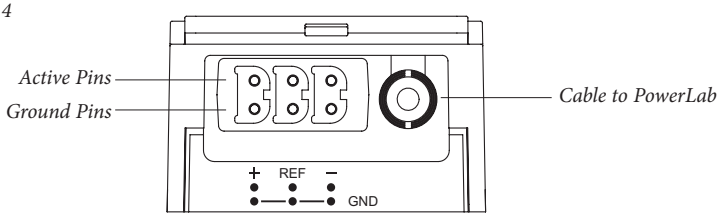
Electrodes were placed on the left and right side of the eyes, as well as above and below the right eye.



Horizontal (Channel 1) and vertical (Channel 2) eye movements using two EOG Pods.

Back Panel

Figure 4



Caution

Read “Statement of Intended Use” on our website or in “Getting Started with PowerLab” before use.

Specifications

Amplification range:	±5 mV*, ±2 mV, ±1 mV, ±500 µV, ±200 µV, ±100 µV
	* maximum usable range is ± 4mV
Pod gain:	×1000
Gain error:	±5% untrimmed, ±0.1% when calibrated
Frequency response:	DC to 500 Hz
Low pass filter:	500 (fixed) 2nd order Butterworth
Temperature drift:	±3 µV/°C
CMRR:	>80 dB
IMRR:	>110 dB
Input impedance:	<100 MΩ
Front panel control:	offset knob for initial zeroing of device
Input bias (maximum):	±10 nA @ 25 °C
Input connector:	3 shielded lead wire connectors
Cable length:	1.5 m
Weight:	200 g

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

Ordering Information:aa

ML317 EOG Pod

For use with:
MLA1010 Disposable ECG Electrodes

Supplied with MLA2504 Shielded Lead Wires (B/G/W, 3 pk).