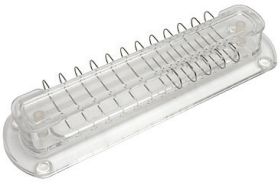
ADINSTRUMENTS

MLT016/X Nerve Chamber

Transducer Series

Description

The MLT016/X Nerve Chamber is designed for the recording of biphasic and monophasic action potentials from isolated nerves. It contains 17 stainless steel wire electrodes of 0.8 mm diameter spaced at intervals of 5 mm and 10 mm. Action potentials can be recorded from the Nerve Chamber using the PowerLab differential Pod inputs, or an ADInstruments Bio Amp. It is supplied with a stimulator cable and recording cables.



Nerve placement

A frog or toad sciatic nerve should be prepared in as long a length as possible (3 cm minimum, while 5 cm or longer is ideal). Tie short lengths of thread around each end of the nerve. The thread can be pushed, using forceps, into split silicone tubing at either end of the bath to help position the nerve — but do not stretch the nerve! The root of the nerve should be positioned over the stimulating electrodes. Place a small quantity of water or buffer solution in the bottom reservoir of the chamber to humidify the compartment, then replace the lid so that the humidity in the chamber is maintained.

Connecting the electrodes

Usually the first pair of 5 mm spaced electrodes are connected via the stimulator cable to Output + and – of the PowerLab unit (Output 1 and 2 on some models). The negative terminal (Output –, or Output 2) should be connected closer to your recording electrodes. Connect the leads from the recording cable to the nerve chamber by attaching the Micro-Hooks to the desired electrode wires. Connect the recording cable to the appropriate socket of the PowerLab (or Bio Amp cable). It is also possible to record from a second pair of electrodes further along the nerve so that the action potential is recorded at two positions, on different channels *(Figure 1)*.

Application

The MLT016 Nerve Chamber is used for the demonstration of nerve action potential properties such as:

- Threshold potential
- Threshold duration
- Refractory period
- Conduction velocity

Typical Configuration

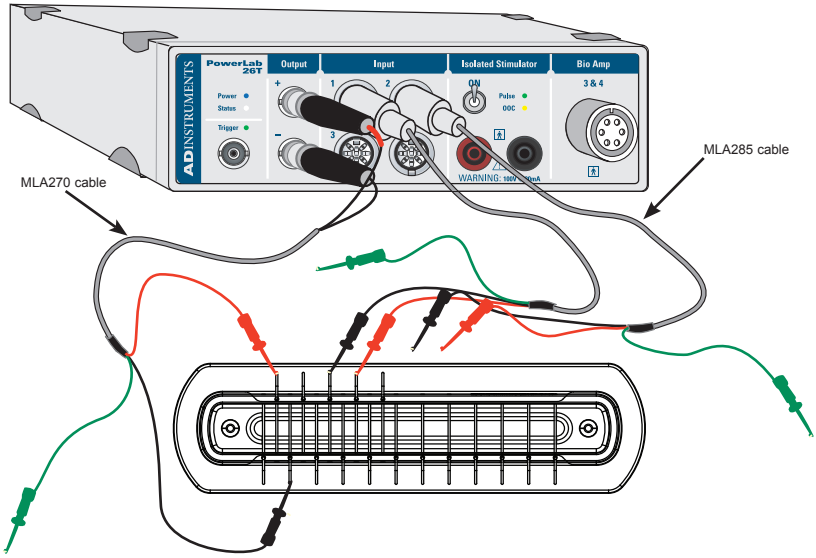


Figure 1: MLT016 Nerve Chamber, with PowerLab 26T. Connections are shown for stimulating with the analog output and for recording on two channels via the Pod inputs. Usually the ground (green) Micro-Hooks are not connected.

Typical Data

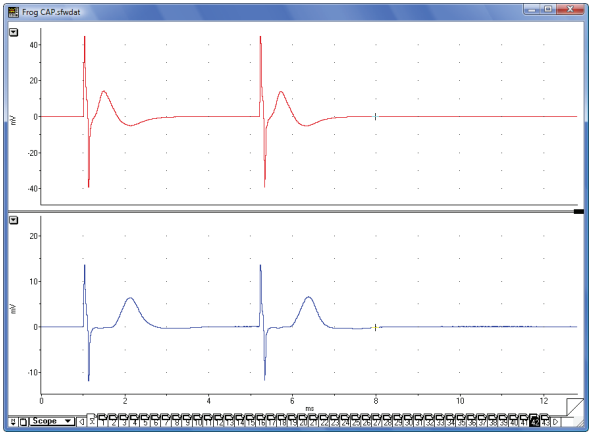


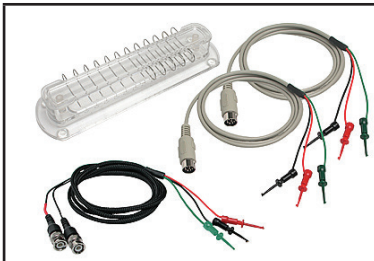
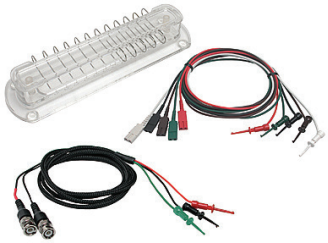
Figure 2: Compound action potential recorded from a toad (Bufo marinus) isolated sciatic nerve. Two 0.1 ms duration stimulus pulses were applied with an interval of 2.6 ms. The lower trace is from a second pair of recording electrodes situated further along the nerve, as shown above.

Features and Benefits

- Electrodes spaced at 10 mm intervals for long nerve segments and 11 electrodes spaced at 5 mm intervals to accommodate short nerve segments. Distance between end electrodes 110 mm
- Different cabling options supplied with unit (see previous page) to suit different hardware configurations.
- Electrodes protruding on alternate sides of the nerve chamber for less crowded cable connection.
- Electrodes constructed of medical grade stainless steel to resist corrosion — assuring good electrical contact.
- Reservoir and lid to maintain humidity in the chamber — keeping the nerve alive for longer

Cleaning and Care

- The nerve chamber can be immersed and should be washed with hot water and rinsed with deionized water after use.
  Avoid cleaning with organic solvents.
- Do not immerse any of the cables.

	
MLT016/B Nerve Chamber with Cable Options B: For use with any PowerLab with Pod ports.	**MLT016/C Nerve Chamber with Cable Options C:** For use with PowerLabs with built-in Bio Amps and shielded subject cables or any ADInstruments Dual Bio Amp.

Caution

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

Specifications

Number of electrodes:	17
Electrode separation:	11 at 5 mm & 7 at 10 mm
Electrode diameter:	0.8 mm
Electrode material:	Medical grade stainless steel
Chamber body and lid material:	Clear acrylic
Size (with lid):	180 × 50 × 30 mm (W × D × H) (7" x 2" x 1.2") (W x D x H)

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

Ordering Information

The nerve chamber can be ordered in a number of standard configurations that include the chamber, stimulator cable and a recording (signal) cable or lead wires that suit different PowerLab system configurations. Please consider all options carefully before ordering.

MLT016/B Nerve Chamber with Cable Options B includes:

MLT016 Nerve Chamber
MLA270 Stimulator Cable (BNC to Micro-Hooks)
MLA285 (Qty 2) Differential Pod Input Cable (DIN to Micro-Hooks)

For use with any PowerLab with Pod ports.

MLT016/C Nerve Chamber with Cable Options C includes:

MLT016 Nerve Chamber
MLA270 Stimulator Cable (BNC to Micro-Hooks)
MLA285 (Qty 2) Differential Pod Input Cable (DIN to Micro-Hooks)
MLA1610 5-Lead Wires (shielded) with Micro-Hooks

For use with PowerLabs with built-in Bio Amps and shielded subject cables or any ADInstruments Dual Bio Amp.

If you have any queries about cable configurations, please contact your local ADInstruments representative.

WARRANTY: ADInstruments PowerLab data acquisition units (Product Number Prefix: PL), Front-end Signal Conditioners (Product Number Prefix: FE) are warranted against defects in materials and workmanship for a period of 5 years from the date of purchase. Other PowerLab data acquisition units and ADInstruments manufactured Front-end and Pod Signal Conditioners, and Instruments are warranted of a period of 3 years from the date of purchase. Third party products are covered by the manufacturer's warranty. Warranties are void if the product has been damaged due to negligence. Consumables and electrodes are not covered by a warranty. All questions regarding service and warranty should be directed to your nearest ADInstruments representative.