

## MLTS700 Goniometer (Joint Angle Sensor)

### Transducer Series

### Description

The MLTS700 Goniometer (Joint Angle Sensor) is a robust, bipolar angle sensor for single degree of freedom joints such as the knee and elbow. Velcro straps, brackets and adhesive tape are supplied to secure the sensor in place. The sensor can be connected directly to a PowerLab Pod port for immediate recording.



### Operation

The MLTS700 consists of two plastic enclosures attached to either end of a 200 mm vinyl-covered metal cantilever. A pair of optical fibers run along either side of the cantilever. One enclosure contains the electronics that convert the light signal from the sensor to an electrical output. The other enclosure is used strictly for mounting. The angle between the two plastic enclosures determines the amount of light travelling through the fibers. When the sensor is straight, the output is 2.5 Volts. The output range is  $\pm 1.0$  Volts for an angle of  $\pm 90^\circ$ .

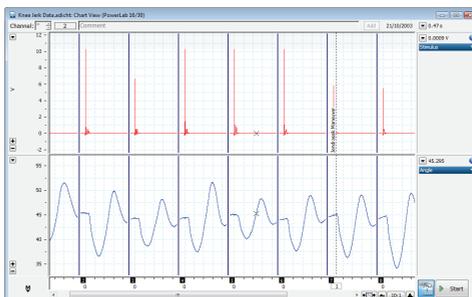
The MLTS700 should be mounted so the center of the cantilever lines up with the turning center of the joint being measured. It should also be mounted in the neutral axis of the joint to minimize length differences between the joint and the sensor as it moves through the range of motion. The plastic enclosures can be attached to the brackets using double-sided tape and secured to the limb using the velcro straps.

### Application

The sensor is used in joint angle studies in humans and large animals and is ideal for use in undergraduate classes, particularly for tendon jerk experiments.

### Typical Data

*Knee jerk experiment using the MLA93 Tendon Hammer (Channel 1) and the MLTS700 Goniometer (Channel 2).*



## Caution

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

## Specifications

|                                     |   |
|-------------------------------------|---|
| Excitation:                         | 5 to 15 V DC                                  |
| Full scale range:                   | $\pm 1.0$ V for $\pm 90^\circ$ joint movement |
| Output voltage for straight sensor: | $2.5 \text{ V} \pm 0.2 \text{ V}$             |
| Accuracy:                           | $\pm 2\%$ full scale                          |
| Resolution:                         | 0.05 degrees                                  |
| Bandwidth (3 dB):                   | 1.0 kHz                                       |
| Operating temperature:              | $-40^\circ\text{C}$ to $+70^\circ\text{C}$    |
| Cable length:                       | 3 m (10')                                     |
| Weight:                             | 45 g  |
| Connector:                          | 8-pin DIN                                     |

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

## Ordering Information:

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For use with:

Any PowerLab with a Pod port

FE305 Pod Expander

MLA93 Tendon Hammer