

MLT0015 Isotonic Transducer Operation & calibration

Introduction

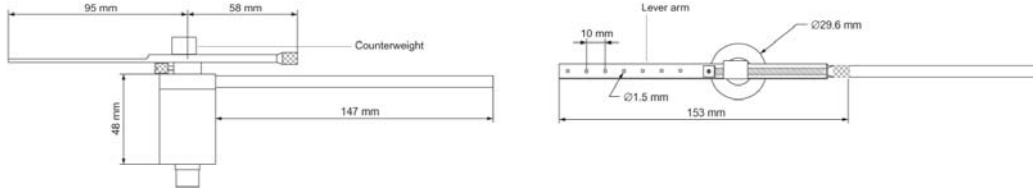
This document is a guide to the operation and calibration of the MLT0015 Isotonic Transducer. The MLT0015 High Grade Isotonic Transducer measures isotonic contractions (displacements under a constant force). The transducer connects to ADInstruments Bridge Amps except the ML118 Quad and ML119 Octal Bridge Amps.



Measuring Units of Force or Weight (g)

Adjusting Preload:

- Step 1: Attach the transducer by its support rod to a stand with the scale on the lever arm facing upwards.
- Step 2: Hang a preload weight in the lever hole to be attached to the tissue. For example a 1 g calibration weight is used if a 1 g preload weight is desired. The lever arm will move downwards.
- Step 3: Without applying any force to the lever arm, use the transducer counterweight to balance the arm by adjusting the screw until the lever arm is balanced (horizontal). The red lines are for reference only.
- Step 4: In Chart, press ZERO in the Bridge Amp dialog window.
- Step 5: Remove the calibration weight and the transducer lever arm will now move upwards due to counterweight.
- Step 6: Attach the tissue/muscle (using thread) to the same hole used for calibration (lever will move down after this).
- Step 7: If necessary adjust the transducer until the lever returns to a horizontal position. The tissue is now set at preload equal to calibration weight.

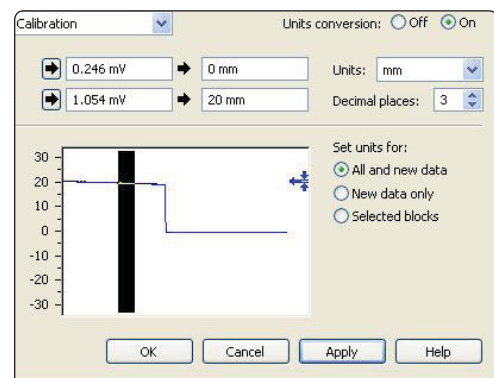


Mechanical Diagram of the MLT0015 Isotonic Transducer

Measuring Units of Displacement (mm)

Once the preload has been set, units conversion can be applied in Chart to measure displacement.

- Step 1: Do not attach any weight. Balance the transducer lever in a horizontal position on a flat surface (i.e. table or book). When the lever is balanced, the output of the transducer should be approximately 0 mV (no displacement).
- Step 2: Open the Bridge Amplifier dialog in Chart press ZERO, click OK and start recording in Chart.
- Step 3: Using a ruler, raise the transducer lever to a known height (i.e. 5 mm, measuring from the hole in lever arm) and record the corresponding signal. The electrical output of the transducer (mV) is now equivalent to a 5 mm displacement.
- Step 4: Stop recording in Chart and select data that includes both recorded signals at zero and 5mm displacement.
- Step 5: Open the Units Conversion dialog and in the units conversion, use the zeroed signal as the Point 1 and the signal at 5mm displacement as Point 2. Select Apply and OK to use the calibrated units.



Units Conversion dialog

The MLT0015 is now ready for use.