



Permeabilized Fiber Test System

1400A | 1410A



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Performance.
Precision.
Progress.

aurorascientific.com/1400a

Simplify your most demanding permeabilized fiber experiments with a revolutionary automatic indexing test system

The 1400A and 1410A are a revolutionary pair of test systems designed to enhance experimental throughput and simplify complex permeabilized fiber experiments.

Aurora Scientific understands the broad range and application of studying permeabilized fibers. That is why we designed the 1400A series to permit precise measurements of fiber properties. Our dependable temperature controlled apparatus contains XYZ micrometer stages with built-in mounts for our high-speed length controllers and force transducers. In addition, this groundbreaking bath controller features our software programmable motion control sequencer allowing specific, automated bath transfer of the fiber being studied.

This dedicated software package also includes a library of experimental protocols to simplify the most demanding of experiments, allowing easy control and measurement of both force and length. Control and measurement of force, length and sarcomere length (when combined with our optional HVSL/VSL component) permits characterization of muscle tissue including force-pCa, kTR, length-tension, force-velocity and stiffness.

This completely integrated test system is manufactured using corrosion resistant materials and is easily mounted on an inverted microscope for basic observation or more sophisticated imaging. Choose the 1400A and 1410A for performance, precision and progress.

System Components

315C/322C - High Speed Length Controller

403A - Fast Response, High Resolution Force Transducer

600A - Complete Data Acquisition and Digital Controller System

802D - Permeabilized Fiber Test Apparatus

Features

Streamlined and efficient system to test single, permeabilized fibers

Temperature controlled 8-well bath plate

Real-time Linux software with revolutionary automatic indexing

Resolution as low as 0.01 μ N

Control and measure force, length and sarcomere spacing

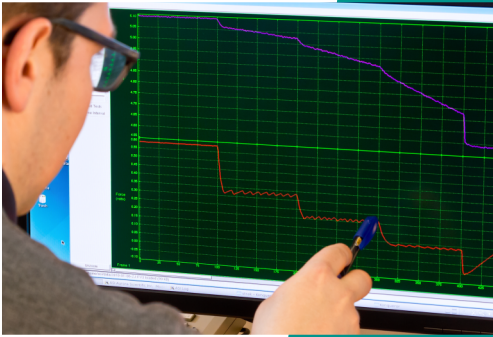
Measure force-pCa, kTR, stiffness, length-tension and force-velocity relationships

Range of peak forces from 0.5mN to 100mN



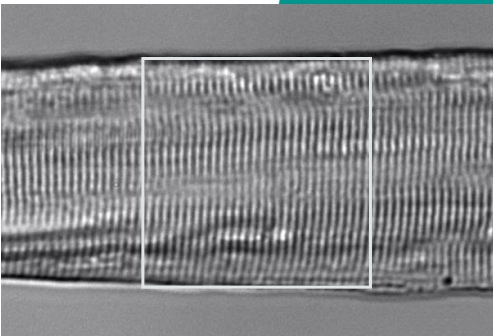
Automated Sample Chamber

Performing a force-pCa experiment is a breeze with our automatically indexing bath plate. Pre-program calcium concentrations and activation/relaxation sequences and let the 1400A system do the rest.



Powerful Software with Standard Protocols

The software's protocol library includes a variety of experiments for single fiber studies, with easy to use applets for adjusting system settings. Powerful, pre-written functions allow you to add your own custom protocols as well to streamline system operation with multiple lab members.



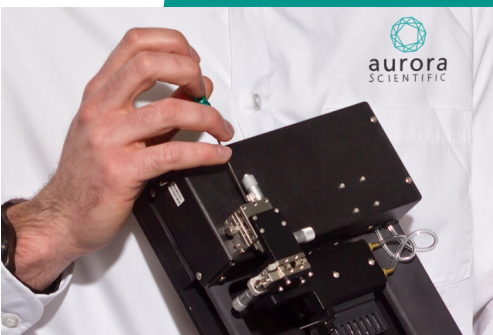
Integrate with Sarcomere Length

Setting your resting sarcomere length accurately becomes trivial when pairing the 1400A with our 900/901B Video Sarcomere Length Software. The high frame rate camera synchronizes with the data acquisition software enabling force, fiber length and SL to be collected in real time in a single, time-synchronized file.



Available Temperature-Jump Option

Study the effect of temperature dependent activation with our T-jump variant of the 1400A. Precise, Peltier controlled bath plates allow for the creation of cold and warm baths simultaneously at any temperature between 0-40 degrees Celsius.



Friendly and Reliable Support

We stand by our products and by our customers. We can provide complete onsite installation, full service training and detailed instruction regarding software controls. As your partner in research we do all we can to ensure your studies stay on track and deliver the data you need.



Select Publications

A gain-of-function mutation in the M-domain of cardiac myosin-binding protein-C increases binding to actin.

Bezold, Kristina L., et al. *Journal of Biological Chemistry* 288.30 (2013): 21496-21505. PMID: 23782699

Lion (*Panthera leo*) and caracal (*Caracal caracal*) type IIx single muscle fibre force and power exceed that of trained humans.

Kohn, Tertius A., and Timothy D. Noakes. *The Journal of Experimental Biology* 216.6 (2013): 960-969. PMID: 23155088

Alterations at the cross-bridge level are associated with a paradoxical gain of muscle function in vivo in a mouse model of nemaline myopathy.

Gineste, C, et al. *PLoS One*. (2014) Sep 30; 9(9):e109066. PMID: 25268244

Effects of a preferential myosin loss on Ca²⁺ activation of force generation in single human skeletal muscle fibres.

Ochala, J, and Lars Larsson. *Experimental Physiology*. Apr. 93(4) (2008): 486-495. PMID: 18245202

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