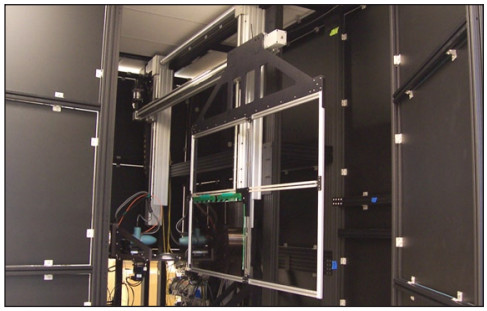
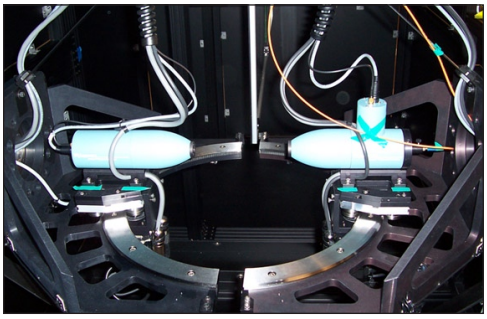
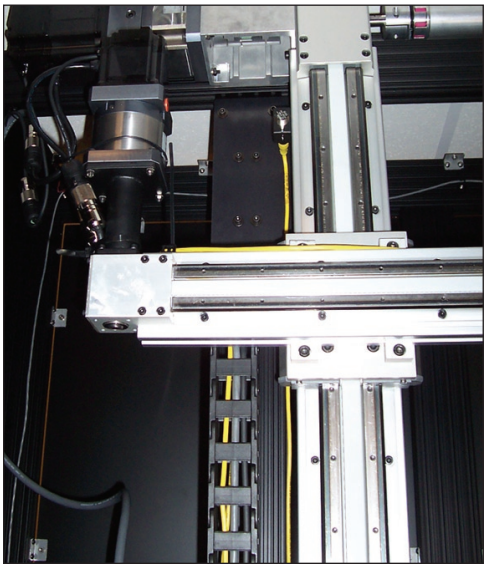
Lab Automation
Optical Equipment
Application Profile







Extremely challenging problem leads to a very successful custom solution

Challenge
Axometrics Inc. manufactures polarization measurement equipment which tests LCD polarization to maximize the manufacturing process. With the recent explosion of larger LCD panels being used in the monitor and television industries, a method to measure different size LCD panels faster and more efficiently was required by Axometrics' customers. The challenge was to figure out how to rotate and position the AxoScan™ SpectroPolarimeter and still maintain the required distance between the transmitter and receiver so that they could accurately measure and compare against the LCD manufacturer's specifications for different size screens.

Application Description
AxoScan™ SpectroPolarimeter is a fixed device which scans LCD screens that, prior to the redesign, were manually positioned between the transmitter and receiver. It measures the complete polarization properties of samples from 450 to 800 nm in under five seconds with 10 measurements per second.

Solution
Axometrics chose the Precision Ring and Track (PRT) to provide their rotational requirements. The solution was to use two internal gear ring segments with carriages mounted as mirror images of each other, separated by a space to allow the LCD panel to move between the transmitter, mounted on one carriage/ring segment, and the receiver, mounted to the other carriage/ring segment. The carriage/track system allows a 70º move in either direction with a minimum move increment of 0.05º and a repeatability of 0.05º, and a maximum velocity of 40º / sec. The two heads maintain an alignment of + / - 0.2mm over 165.1mm.

To accurately position the LCD panels between the scanners, Bishop-Wisecarver's LoPro was chosen for the linear axes. Since design specifications required a LCD panel up to 60 inches diagonally be moved at a maximum velocity of 1000 mm/sec with a repeatability of 0.1 mm (0.004"), the X horizontal axis was supplied with two carriages to provide a larger moment capacity. The additional carriage plate increased the travel length of the X axis to 2,204.8 mm. To support the X axis and its load, a larger size LoPro was used for the Y-Y' vertical axes.

Additional custom solutions were used to complete this application including carriage adapter brackets, an aluminum torque tube, and a motor adapter bracket.

Products Used
- HepcoMotion PRT
- LoPro® Size 2, Belt Driven - X Axis
- LoPro® Size 3, Belt Driven - Y-Y' Axes

Contact us to discuss your specific linear motion needs: 888.580.8272 – or visit us online at www.bwc.com

(Catalogs may be downloaded directly from www.bwc.com)

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