# Crandun Technologies Inc. CTI-AR600 Software Library
## Thickness Measurement Example

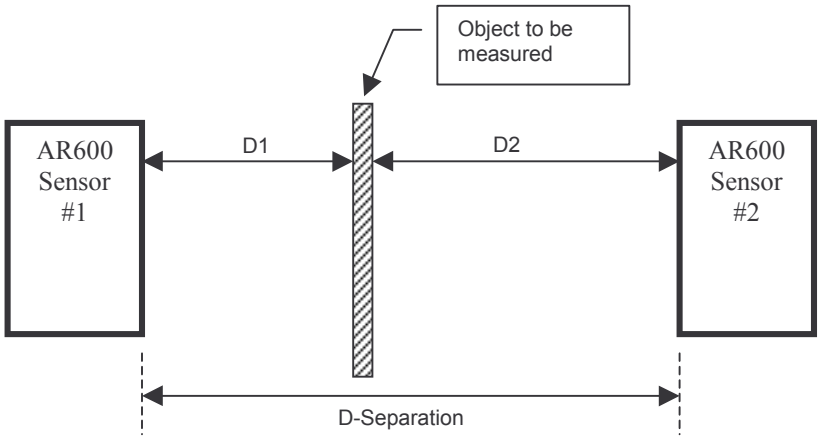
## Introduction

The Crandun Technologies Inc. CTI-AR600 Software Library Thickness Measurement example program demonstrates using the Crandun Technologies CTI-AR600 Software library with two Acuity Research AR600 sensors to measure the thickness of items.

## Measurement Apparatus

The diagram at right illustrates the measurement setup. Two AR600 sensors are used, one situated on each side of the object to be measured. The total distance between the sensors (D-Separation) is known, or can be measured in software. Once this is known, the thickness of the object is calculated by taking the distance values measured by each sensor and subtracting from D-Separation.

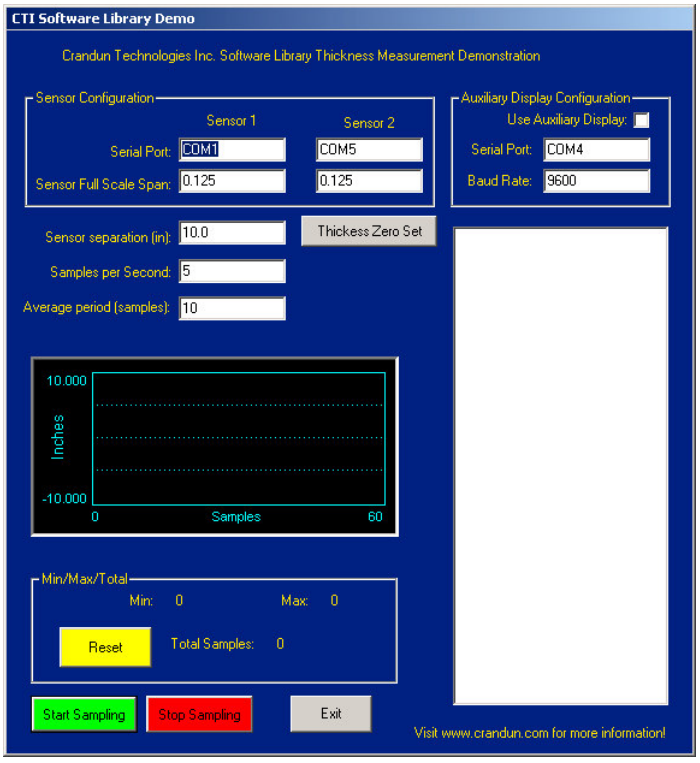
Thickness = D-Separation – (D1 + D2)




## Using the Example Program

The example program demonstrating the above technique is shown at right. To use the program, follow these steps:

1. Ensure that both AR600 sensors are connected to the computer, and are powered on.
2. Ensure that the serial port baud rate of each sensor is 9600 baud (the factory default).
3. Start the program by double-clicking on its file. No installation steps are necessary for this example program.
4. When the program starts, enter the correct serial port names, and full-scale sensor span for each sensor in the fields shown.
5. Press the "Start Sampling" button to start the measurements.




The program collects samples from each sensor at the specified sample rate, and displays the calculated thickness measurement in both the listbox and on the auto-scaling chart graph. The minimum and maximum thickness values, as well as the total number of measurements taken, are displayed below the chart.

Initially, the thickness measurement will be inaccurate, since the program assumes a separation distance of 10 inches between sensors. This may be changed, as follows:

A very thin object (sheet of paper, etc.) should be inserted in place of the object to be measured. When the "Thickness Zero Set" button is pushed, the program measures the corresponding distances, D1 and D2, and assumes that the object is of zero thickness. All subsequent measurements will be relative to this "zero" value. For the purposes of simplicity in this demonstration, it is assumed that the object is of zero thickness. In a production application, the actual thickness of a precision known object (gauging block, etc.) would be measured and used as the baseline value.

If the "Use Auxiliary Display" option is checked before sampling is started, the program also sends all thickness measurements to the specified serial port. This may be used to output data to devices such as the Acuity Research 2000 series alphanumeric displays.

## Summary

This example illustrates only a small subset of the capabilities of the CTI-AR600 Software Library. The complete library provides a feature-rich, high-performance, high-level interface to the functionality of the Acuity Research AR600 series sensors, enabling the quick development of sophisticated applications. Whether for "one-off" prototypes, or for high-volume, high-performance embedded systems, the library is *the* most cost-effective time to market solution for your project. Please see www.crandun.com for more details.