

Crandun Technologies Inc. CTI-AR200 Software Library

Thickness Measurement Example

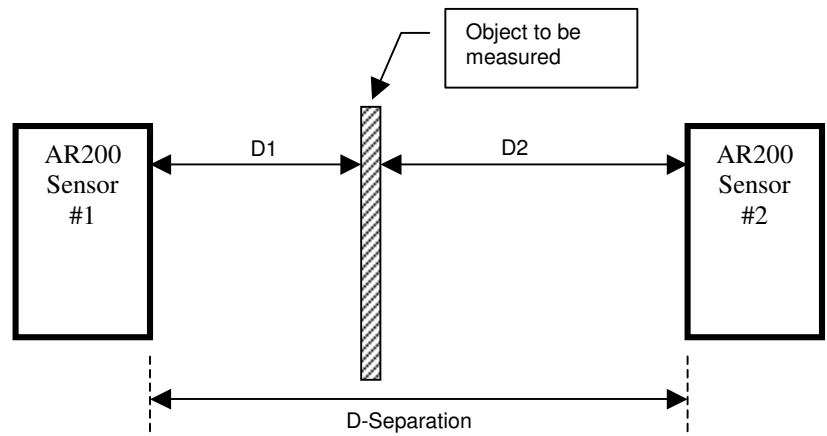
Introduction

The Crandun Technologies Inc. CTI-AR200 Software Library Thickness Measurement program demonstrates using the Crandun Technologies CTI-AR200 Software library with two Acuity Research AR200 sensors to measure the thickness of items.

Measurement Apparatus

The diagram at right illustrates the measurement setup. Two AR200 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.

$$\text{Thickness} = \text{D-Separation} - (D1 + D2)$$



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 AR200 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:

An accurate calibration object (feeler gauge, gauge block, etc.) should be inserted in place of the object to be measured, and the object's known thickness entered in the text field. When the "Calibrate" button is pushed, the program measures the calibration object and calibrates the distance between the sensors accordingly.

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 program illustrates only a small subset of the capabilities of the CTI-AR200 Software Library. The complete library provides a feature-rich, high-performance, high-level interface to the functionality of the Acuity Research AR200 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.

