

Quick Start Guide for Acuity Dual Thickness Measurement

This guide is intended to assist the user in setting up (2) Acuity Triangulation Sensors and an Acuity Touch Panel Display for a dual thickness measurement.

What you will receive to start your dual thickness measurement:



(2) Acuity Laser Triangulation Sensors with cables



**(1) Acuity Touch Panel Display with thickness software preloaded:
Power cable included**

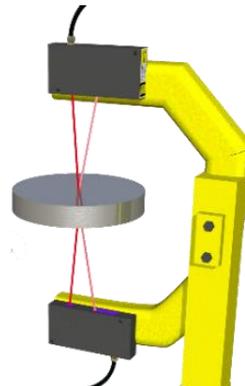
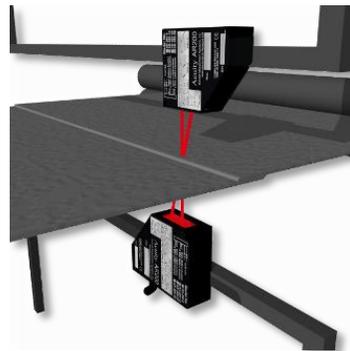


(2) Acuity Connectivity kits with serial and power cables

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Please refer to the following steps below as a reference guide. Please have the Acuity datasheets and manuals handy for additional information needed.

1. **Mounting Sensors:** This section is designed for general mounting instructions of Acuity triangulation sensors (see images below for general mounting examples).
 - a. Mount the sensors in a way that the case is not twisted or warped. Best methods are using the mounting holes listed on the datasheet or externally clamping the sensor along the front and back edges. Do not clamp or squeeze the sensor excessively. If the case is distorted, the sensitivity and accuracy of the sensor may be affected (see datasheet for sensor dimensions).
 - b. Make sure the mounted sensors are in range (see datasheets for specifications). Please note that triangulation sensors have a dead zone – refer to the base distance for the start of measurement range.
 - c. Alignment of laser beams is critical. Emitted laser beam spots of each laser must be properly aimed and aligned through the entire overlapping measurement ranges. If the laser spots are not aligned, the measurement system will fail to measure a true differential thickness. A simple method for testing alignment is to use a thin sheet of paper that will allow the laser spots to be seen from both sides.
 - d. Importance of sensor(s) orientation. For optimal results, laser sensors should be mounted as close to a perfect 90° angle to the surface as possible. The calibration process when setting up the touch panel in thickness mode will help minimize mirror mounting misalignments (see section 4).



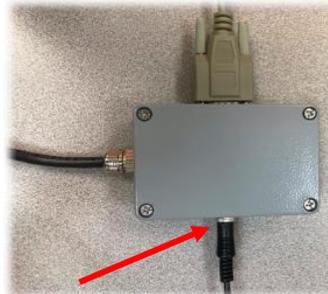
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2. **Connections (Connectivity kits, Serial Cables, Power Cables):** This section is designed to help the user provide power & connection to the laser and power and connection to the touch panel display.
 - a. Connect serial cables: Each laser will come prewired to an Acuity connectivity kit. If the connectivity kit is not prewired, then refer to the manual for wiring instructions. Each connectivity kit will come with a power supply and RS232 serial cable or serial to USB cable. Connect the serial data cables into the connectivity kits. Connect serial cables into touch panel display (labeled Port a and Port b on touch panel). Make sure RS 232 cables are plugged in all the way and sides are twisted in. (See image A below)
 - b. Connect power cables: Connect touch panel power cables to 9v ~ 30V jack, right of DB-9 serial ports and an outlet. Connect connectivity kit power cables to port on the other side of the RS 232 and an outlet. (See image B below)

A



B



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3. Touch Panel Display Software Setup Screen:

- a. Boot the TPD by holding the little green button on the bottom of the unit until amber light on the front of the unit turns green. The TPD should boot into the **Settings** screen.
- b. In the **Laser a config** section, select the laser model.
- c. Select Enabled. The word “Connected” should display next to the baud rate drop-down when connection to the laser is successful.
- d. Repeat steps 1b through 1c for laser b.
- e. Select Thickness Mode. Select “sum” for dual opposing thickness measurement.
- f. Select from units, number of decimal places, & average reading options (rolling, batch, or averaging off).
- g. If applicable, enter upper limit, upper warning, lower warning, lower limit.
 - a. Upper limit: When measurement is equal or greater than upper limit, the measurement color will be red.
 - b. Upper warning: When measurement is equal or greater than upper warn, the measurement color will be orange.
 - c. Lower warning: When measurement is equal or less than lower warn, the measurement color will be orange.
 - d. Lower limit: When measurement is equal or less than lower limit, the measurement color will be red.
- h. Select Done to get to main display screen.

App settings: Units: mm, Decimals: 3, Average readings: 25 rolling, Overwrite laser settings

Thickness mode: sum, difference

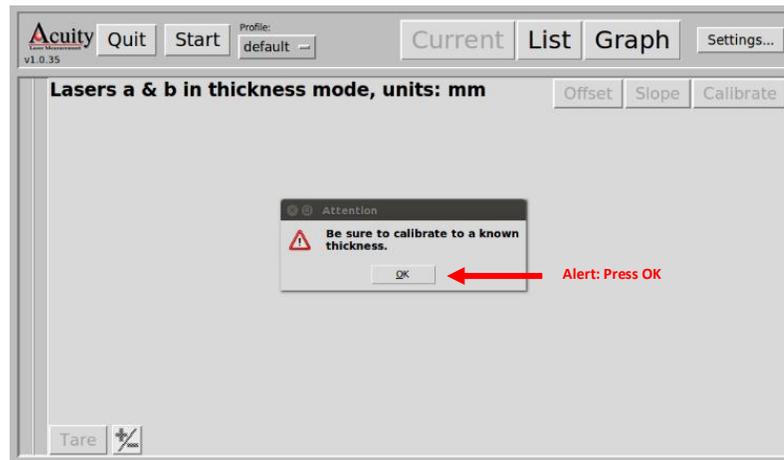
Thickness limits: Upper lim: , Upper warn: , Lower warn: , Lower lim: , Done

Laser a config: Laser: AR200, Model name: AR200-25, Port: /dev/ttyUSB0, Baud rate: 9600 Connected, Sample frequency(Hz): 100, Bkgd light elimination: ON, Sample priority: RATE

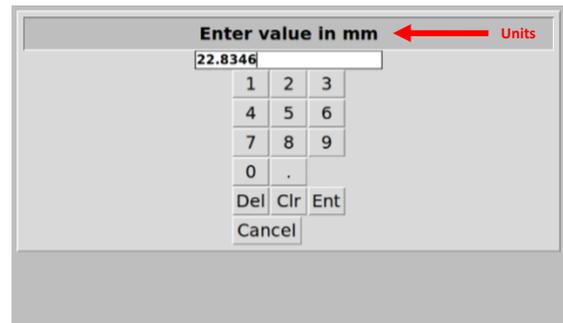
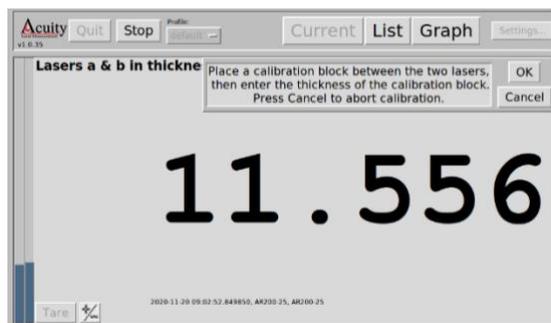
Laser b config: Laser: AR200, Model name: AR200-25, Port: /dev/ttyUSB1, Baud rate: 9600 Connected, Sample frequency(Hz): 100.0, Bkgd light elimination: ON, Sample priority: RATE

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4. **Touch Panel Display Main Measurement Screen:** Software is now set up in dual thickness mode.
- When on the measurement screen, an attention notification will pop up to remind to calibrate to a known thickness.

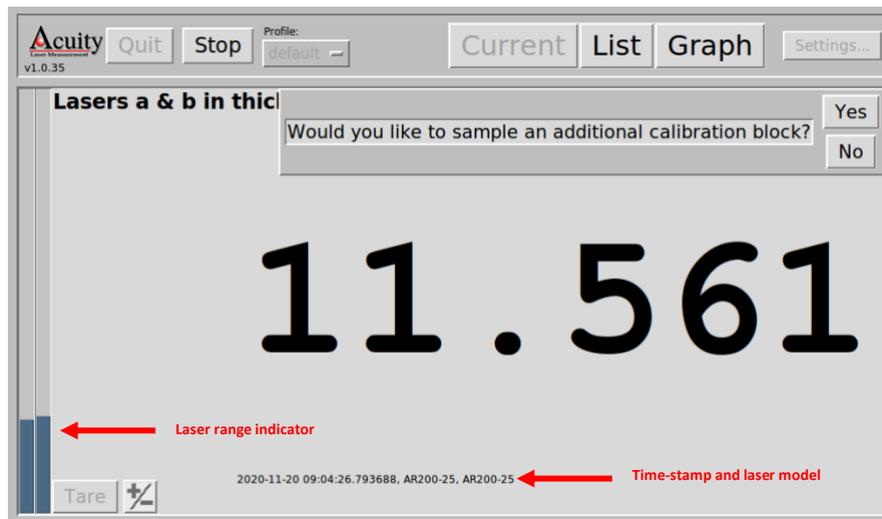


- Press the Calibrate button in the measurement pane.
- Place a calibration block between the lasers and press OK. Then enter the known thickness. Please note the units being entered.



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- d. You will then be asked “Would you like to sample an additional calibration block?”. Choose “Yes” to sample another calibration block. Choose “No” to accept the value of the first calibration block. Typically sampling a single calibration block is sufficient. If greater accuracy is required, sample two calibration blocks of different thicknesses.

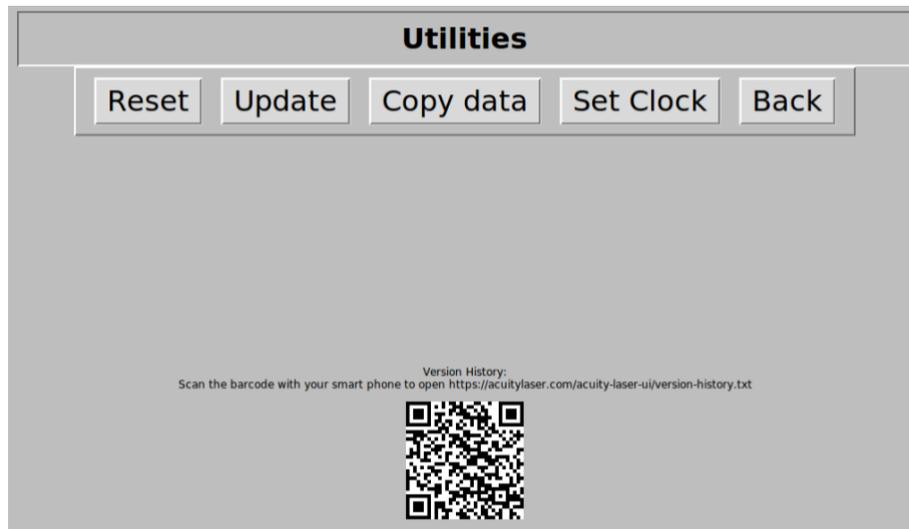


- e. After calibration, press Stop, then press Save to save the current setup. Thickness mode is ready to go.

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5. Downloading the measurement data files (if necessary)

- a. When measuring is complete. Stop the process by pressing the **Stop** button.
- b. Press the **Settings...** button.
- c. Press the **Utilities** button.
- d. Press the **Copy data** button. Insert a USB thumb-drive into the open USB port and press **OK**. The data files will be moved to the thumb-drive and a message will notify the user when it is safe to remove the thumb-drive.



Still Having Issues? Contact Us

Please contact Acuity Sales or your sales reps with any problems or questions with setup and operation.
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