

Cubiscan 210-L Setup Guide

For

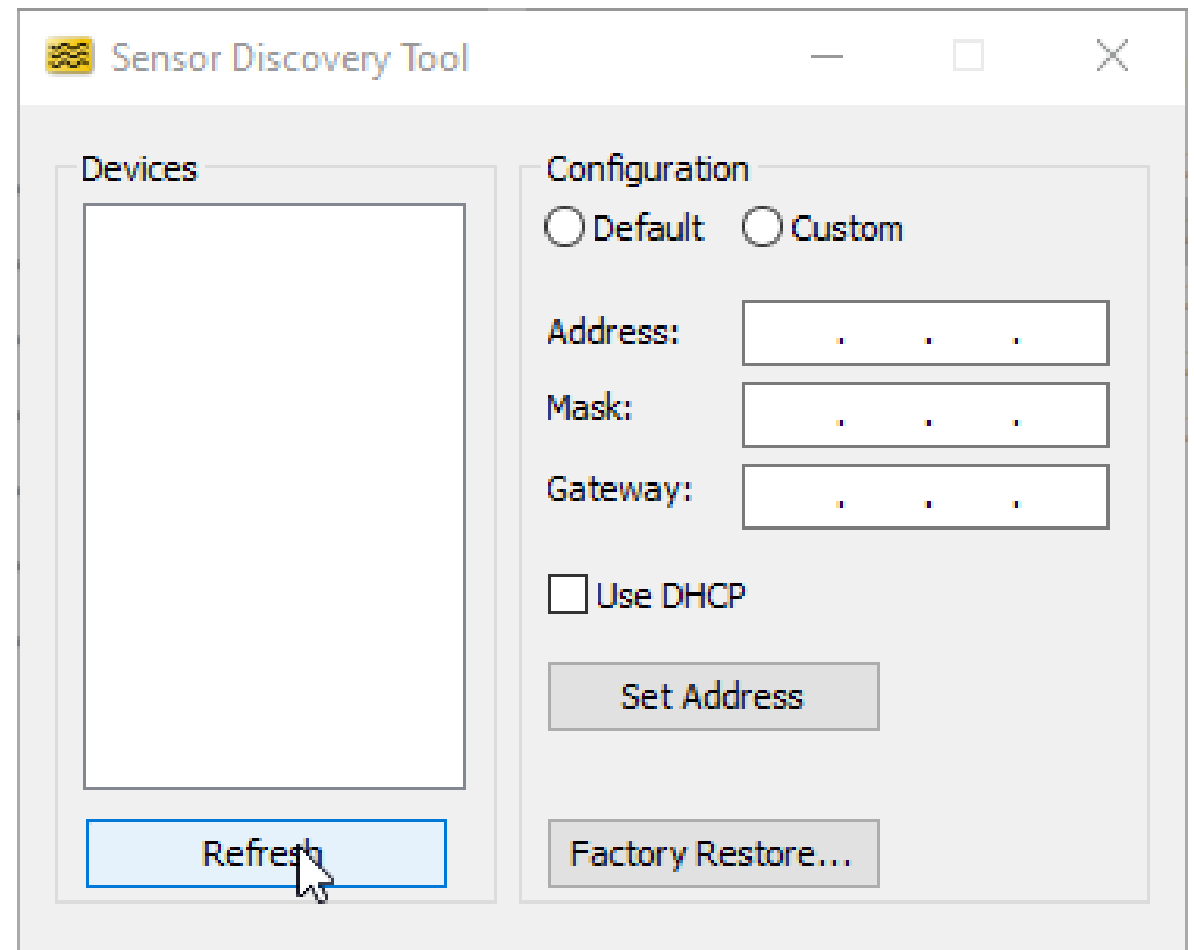
Win Warehouse

Typical System Setup



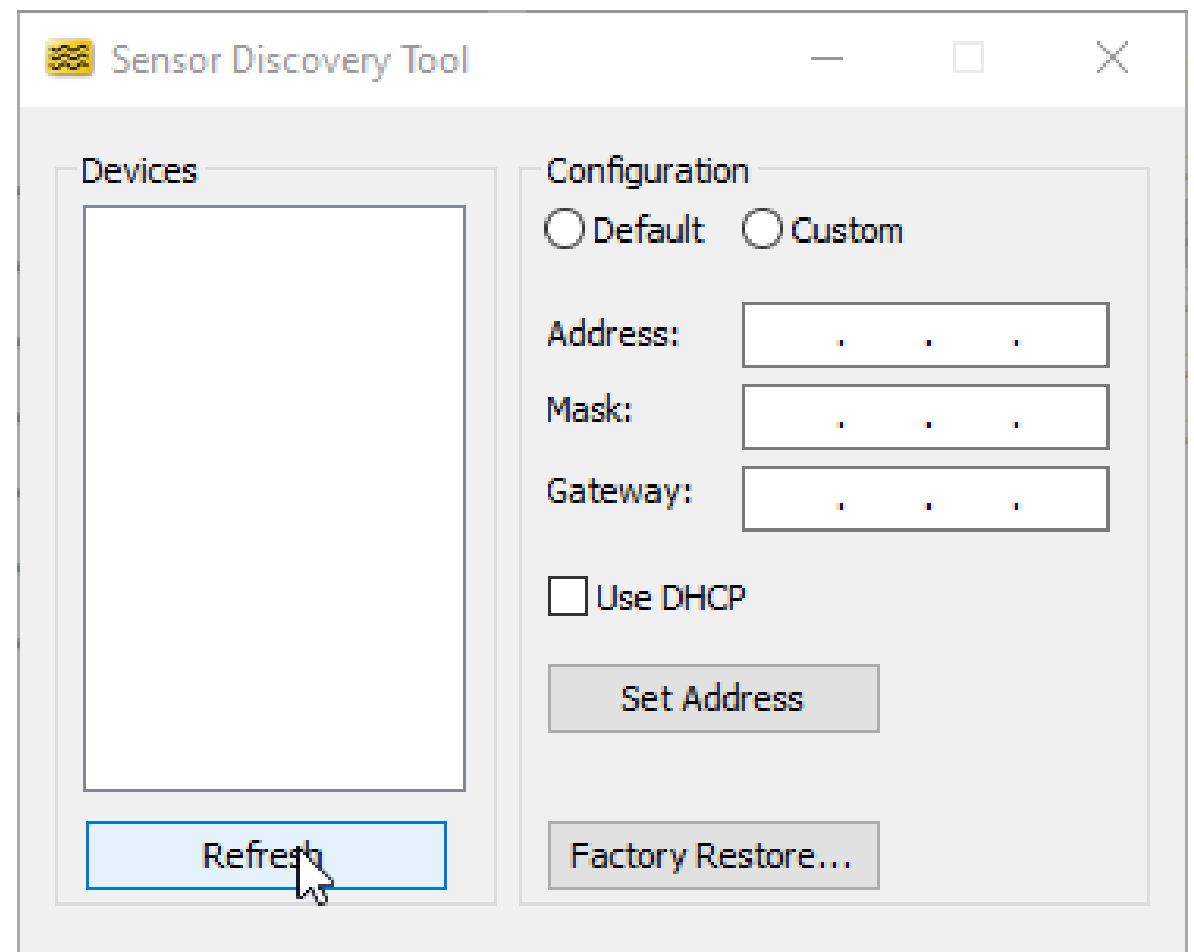
Setup IP Address

- Locate and launch the discovery tool
“**kDiscovery.exe**”
- C:\Cubiscan\210-L Job File\Tools\Discovery
- Click “Refresh” to locate connected sensor



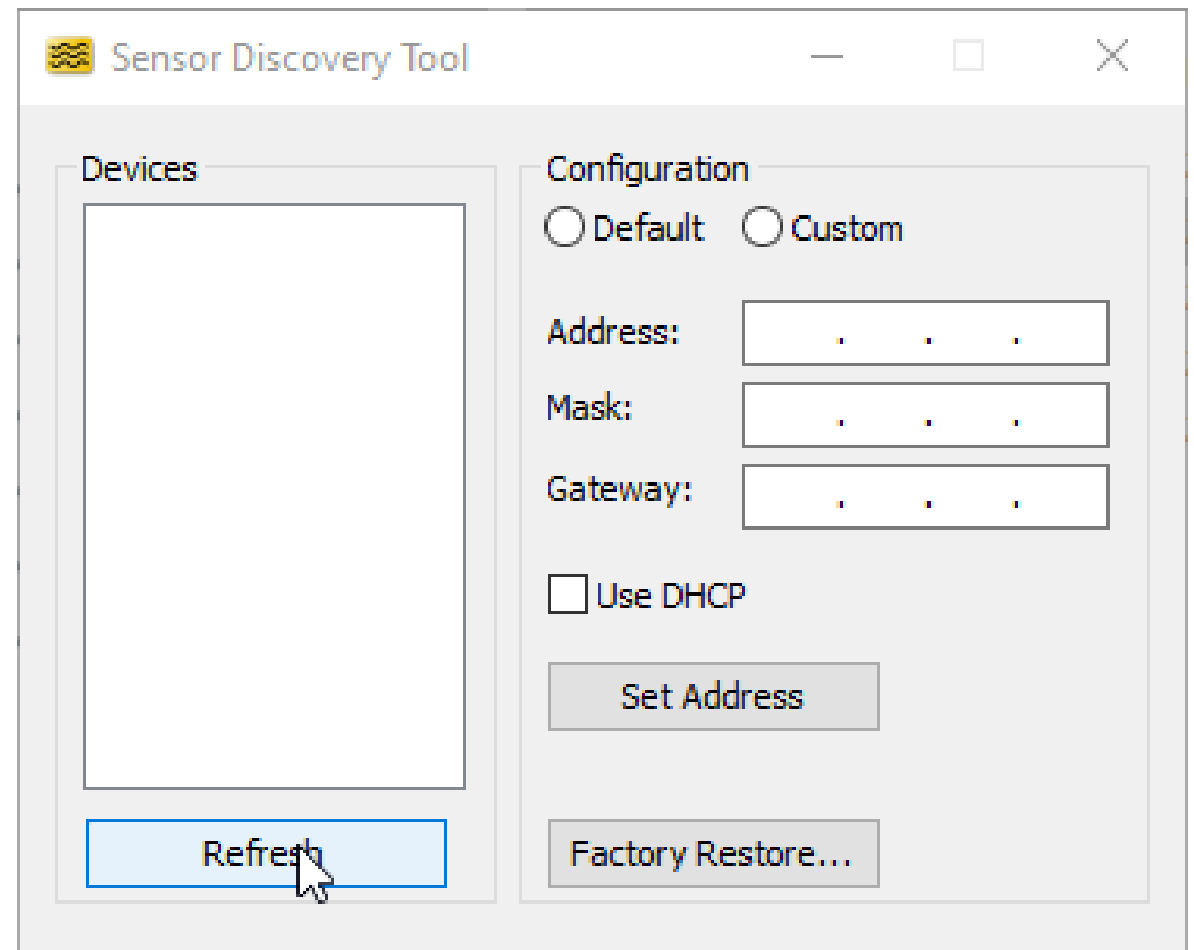
Setup IP Address Cont'd

- You should see the device serial number in the Devices window.
- Select the listed sensor and enter the new IP address 10.1.100.100
- Click “Set Address”. This process takes a minute.



Setup IP Address Cont'd

- The Devices list will probably be blank when finished.
- Click refresh and the sensor should reappear in the Devices list.
- You should see the new IP address in the Address field.
- All done here.

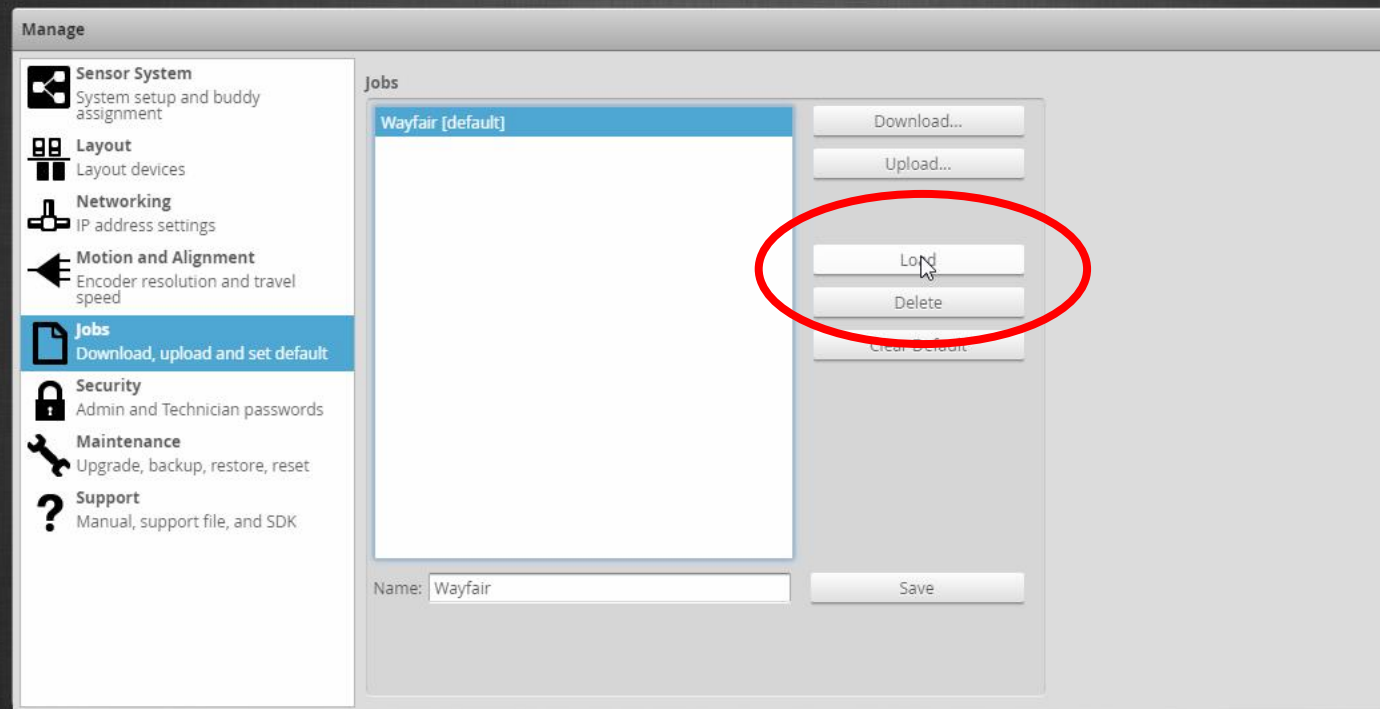
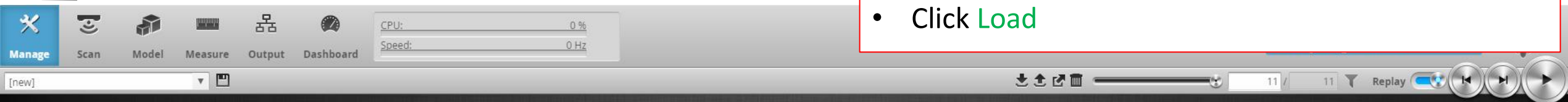


Connect to Sensor

- Open a web browser and navigate to 10.1.100.100

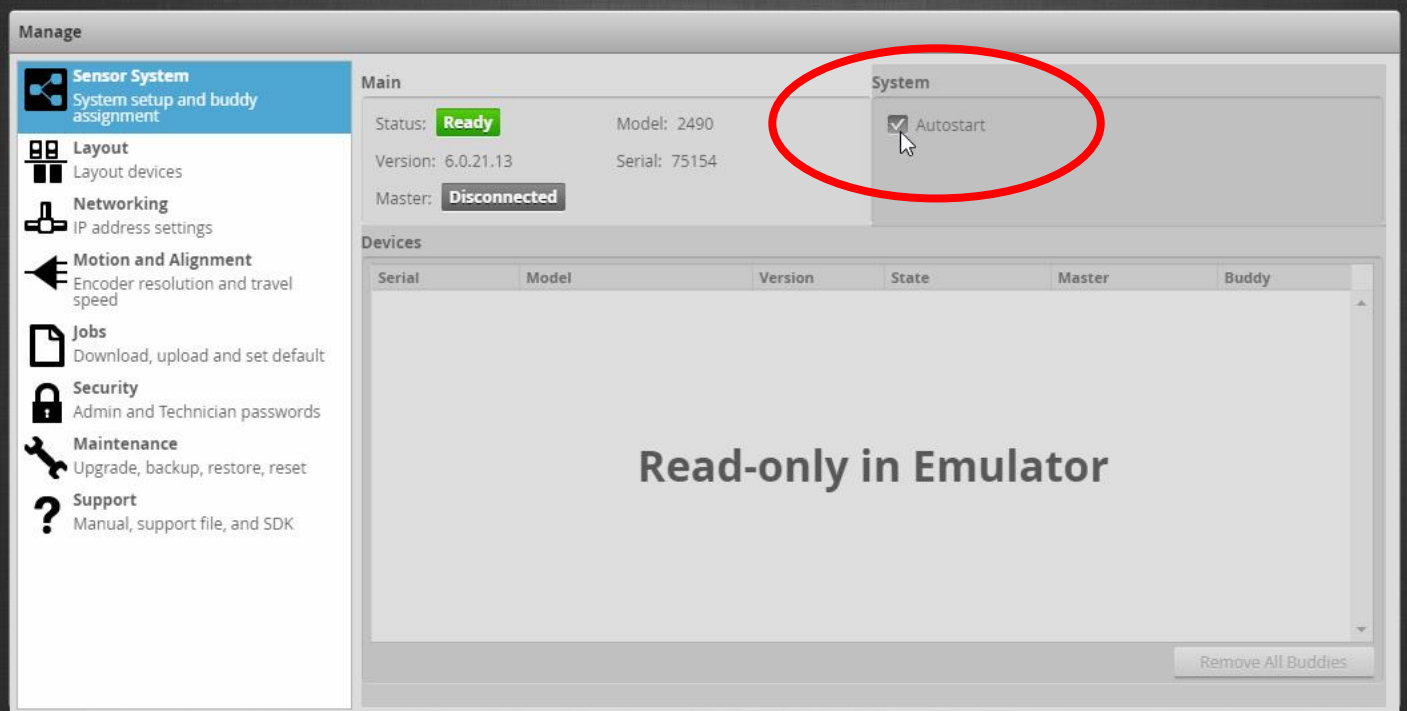
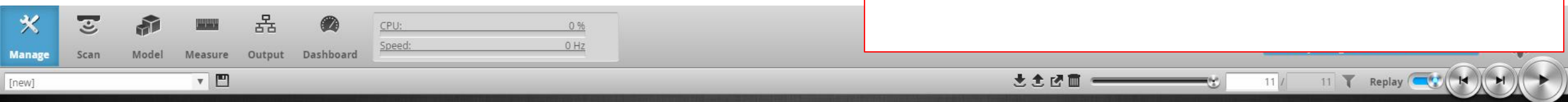
Load Base Configuration

- Skip the intro and navigate to the **Manage** tab.
- Click on **Jobs** in the navigation pane.
- Click **Upload** and navigate to the **Standard.job** file.
- C:\Cubiscan\210-L Job File
- Wayfair should now be in the Jobs list.
- Click **Load**



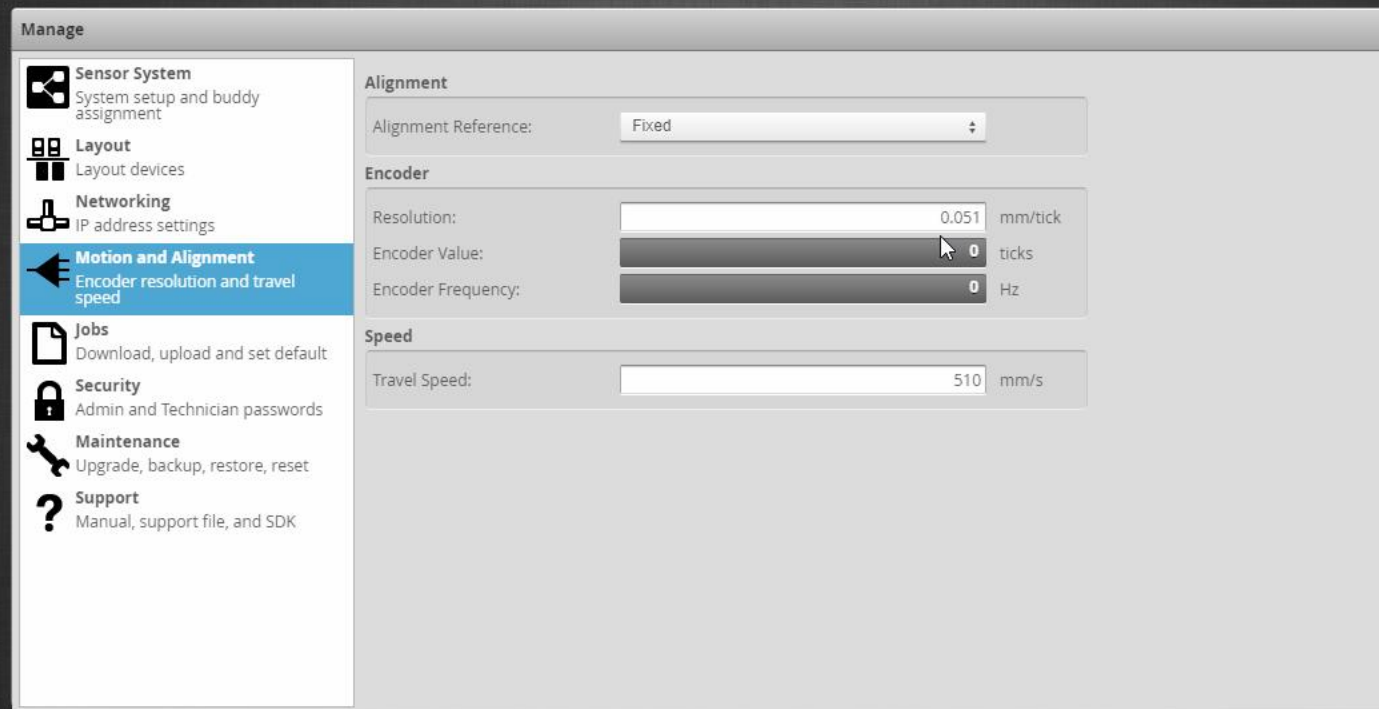
Load Base Configuration Cont'd

- Click on **Sensor System** in the navigation pane.
- Check the **Autostart** checkbox
 - This enables the sensor to automatically boot up in run mode after a power cycle.



Setup Encoder

- Click on **Motion and Alignment** in the navigation pane.
- Set the **Encoder Resolution** to a value of 0.051 mm/tick
- Turn the Conveyor on and ensure that the **Encoder Frequency** is a positive, fairly steady value.



Sensor Alignment

- Click on the **Scan Tab** at the top.
- Expand the **Sensor Section** and click **Reset** under **Active Area**.



The screenshot displays the software interface with the **Scan** tab selected. The main window shows a 3D grid with axes labeled X (mm) and Y (mm). The X-axis ranges from -2000 to 2000, and the Y-axis ranges from -750 to 750. A legend on the right side of the grid lists color-coded values: 92.943 (black), 91.284 (magenta), 89.625 (red), 87.965 (yellow), 86.306 (green), 84.647 (cyan), and 82.988 (blue).

The right-hand sidebar contains the **Sensor** section, which is expanded. The **Active Area** tab is selected, showing a **Reset** button. Below this, a table displays the current sensor settings:

	Min	Value	Max
X Field of View:	0	2000	2000 mm
Measurement Range:	0	1530	1530 mm
X Start:	-1000	-1000	-1000 mm
Z Start:	-765	-765	-765 mm

Other sections in the sidebar include **Scan Mode** (Video, Profile, Surface), **Option** (Acquire Intensity, Uniform Spacing), **Trigger** (Max Frame Rate: 772.247), **Alignment** (ALIGNED), **Surface Generation**, **Part Detection**, and **Filters** (ENABLED).

Sensor Alignment Cont'd

- Expand the **Trigger** section and change the source from encoder to time.
- Make sure the device is in run mode.
 - You should see the laser projected onto the conveyor
 - The exposure can be increased to make the laser line more solid.

The screenshot displays a software interface for sensor control. At the top, a navigation bar includes 'Manage', 'Scan' (highlighted), 'Model', 'Measure', 'Output', and 'Dashboard'. A status bar shows 'CPU:' and 'Speed: 270'. Below this, a toolbar contains icons for download, upload, delete, and a slider. The main area is divided into several panels:

- Surface Panel:** Shows a 3D grid with axes labeled 'X (mm)' and 'Z (mm)'. The 'Top' profile is selected, with a red dot indicating 'Top (400 μs)'. The grid ranges from -600 to 600 on both axes.
- Scan Mode Panel:** Contains three view options: 'Video' (rainbow bar), 'Profile' (line graph), and 'Surface' (3D surface). Below are 'Option' checkboxes for 'Acquire Intensity' and 'Uniform Spacing', both checked.
- Trigger Panel:** Features a 'Source' dropdown menu set to 'Time', which is circled in red. It also shows 'Max Frame Rate: 269.855', a 'Frame Rate' slider, and a 'Gate on External Input' checkbox.
- Sensor Panel:** Displays 'Main' sensor information with the ID '92307'. Below are tabs for 'Active Area', 'Exposure', 'Spacing', and 'Advanced'. At the bottom, there are 'Select', 'Reset', and 'Acquire' buttons, along with 'Min', 'Value', and 'Max' indicators.

Additional UI elements include a 'Replay' button and a red square stop button in the top right corner, both circled in red.

Sensor Alignment Cont'd

- Expand the **Alignment** section.
- Click **Align** to align the sensor to the with the conveyor belt.
- If there is no error dialogue, the sensor will be aligned and ready.

The screenshot displays a software interface for sensor alignment. The main window shows a 3D grid with axes labeled X (mm) and Y (mm). The X-axis ranges from -2000 to 2000, and the Y-axis ranges from -1000 to 1000. A legend on the right side of the grid lists several values: 92.943, 91.284, 89.625, 87.965, 86.306, 84.647, and 82.988. The right-hand panel contains various settings:

- Scan Mode:** Includes icons for Video, Profile, and Surface.
- Option:** Checkboxes for "Acquire Intensity" and "Uniform Spacing" are both checked.
- Trigger:** Max Frame Rate is set to 772.247.
- Sensor:** A green button labeled "ALIGNED" is circled in red.
- Alignment:** Type is set to "Stationary" and Target is set to "Flat Surface". There are "Align" and "Clear Alignment" buttons. A mouse cursor is hovering over the "Align" button.
- Surface Generation:** A plus sign icon.
- Part Detection:** A plus sign icon.
- Filters:** A green button labeled "ENABLED".

The bottom of the interface shows "Displayed Outputs" and "Frame Index: 1".

Setup Measurement Area

- Expand the **Sensor** section.
- Click **Select** under **Active Area**. This is where you will define the measurement area for the sensor.
- Click **Acquire**
- Drag the bottom handle of the box up just below the red line representing the alignment block.

The screenshot shows the software interface for setting up a measurement area. The main window displays a 2D plot of Z (mm) vs X (mm) with a yellow box defining the measurement area and a red line indicating the alignment block. The right sidebar shows the 'Sensor' settings, including 'Active Area' and 'Acquire' buttons.

Surface

Profile: Top

Top (400 μ s)

Sensor

Main: 92307

Active Area | Exposure | Spacing | Advanced

Save | Cancel | Acquire

	Min	Value	Max
X Field of View:	0	2000	2000 mm
Measurement Range:	0	686.25	688.125 mm
X Start:	-1000	-1000	-1000 mm
Z Start:	-765	76.875	78.75 mm

Tracking Window

Transformation

Alignment: **ALIGNED**

Surface Generation

Part Detection

Filters: **ENABLED**

2

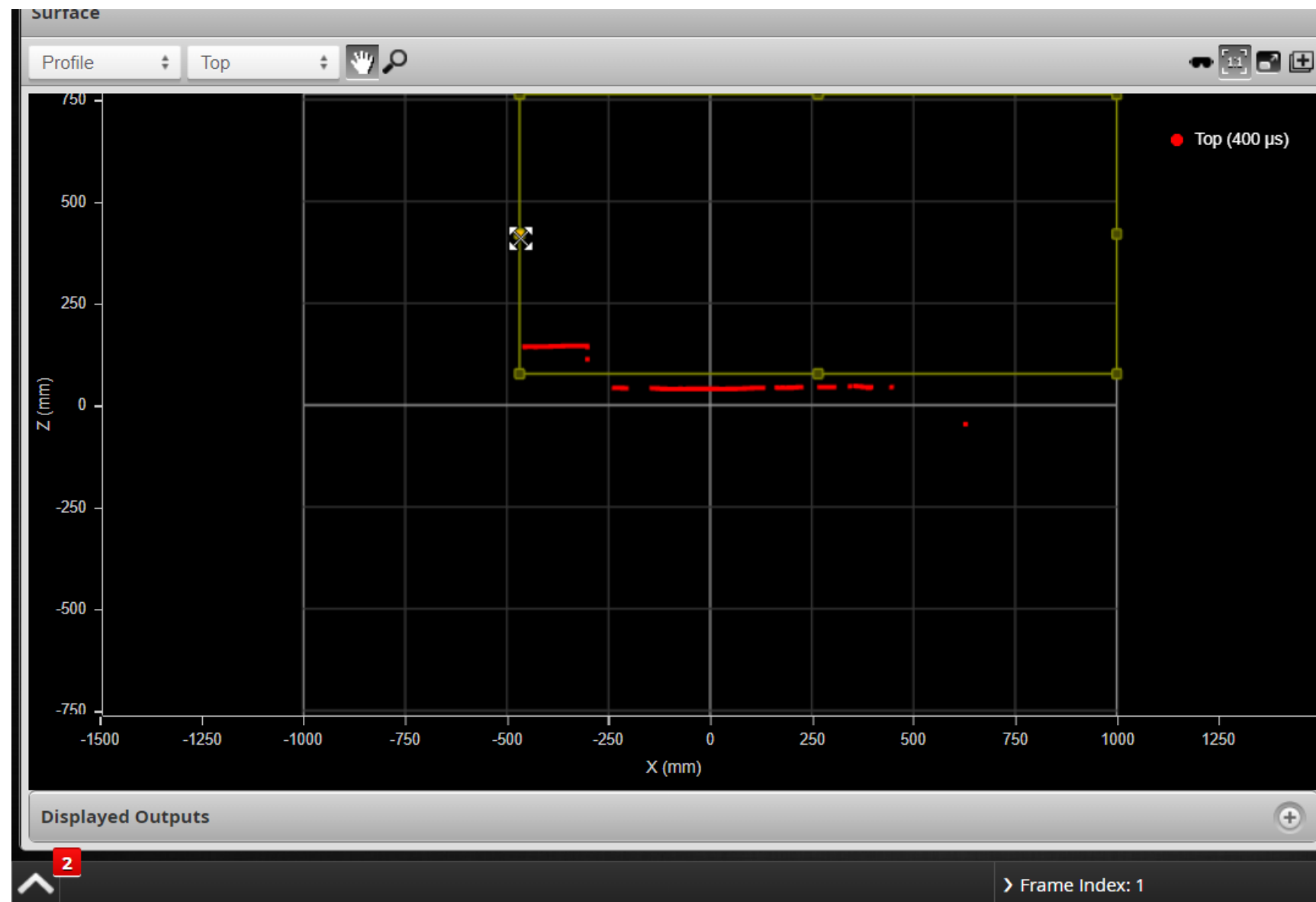
> Frame Index: 1

Quick Edit

EN

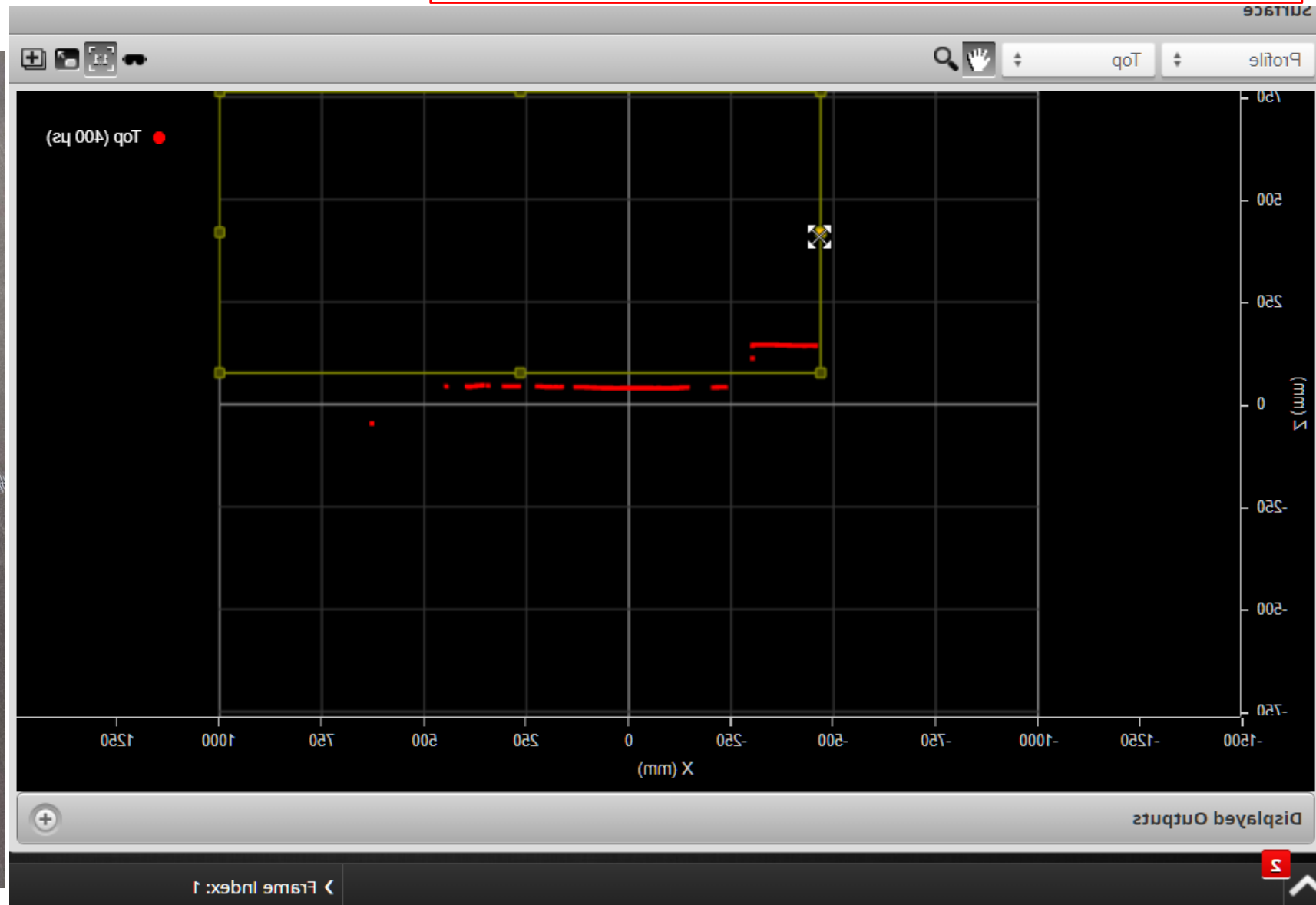
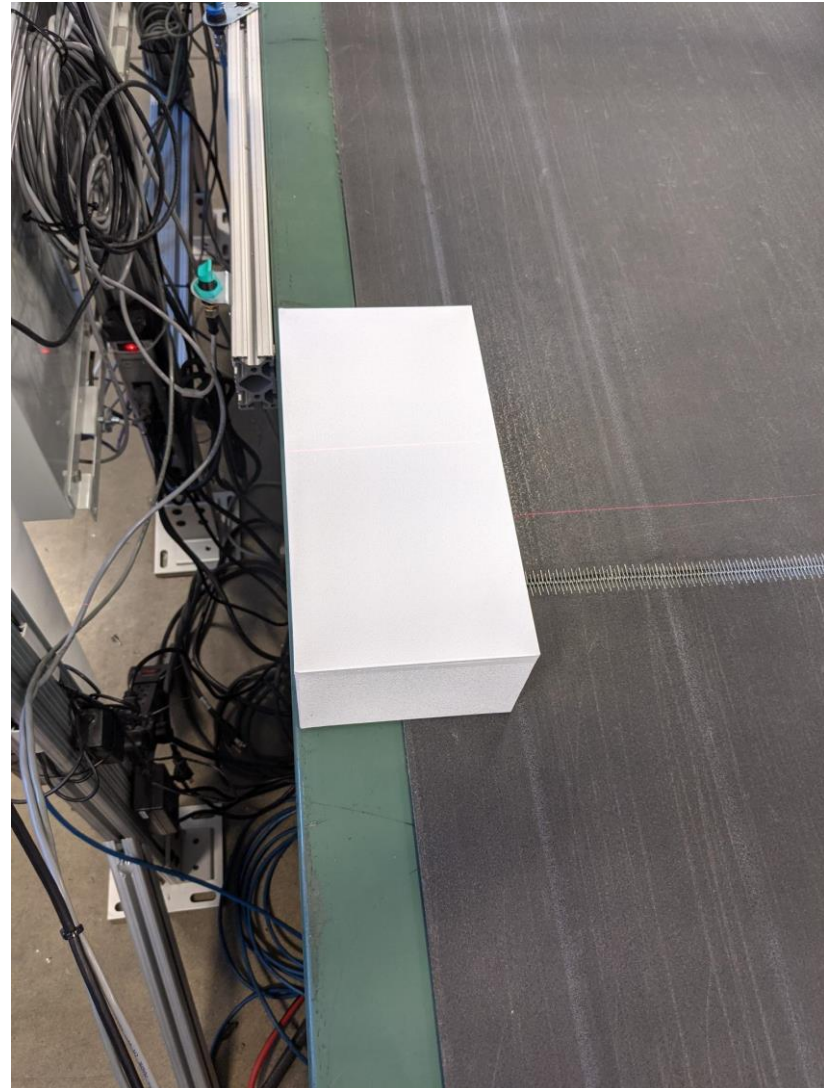
Setup Measurement Area Cont'd

- Without saving, place the white calibration cube at one edge of the conveyor in the laser.
- Click **Acquire**
- You should see the box represented on the screen
- Drag the left handle of the box just to the left of the red line representing the calibration cube.



Setup Measurement Area Cont'd

- Repeat the last step for the other edge of the conveyor
- Drag the right handle of the box just to the right of the red line representing the calibration cube.



Setup Measurement Area Cont'd

- Now click **Save**.
- Change the **Measurement Range** Value to match the tallest expected item

The screenshot shows the software interface for setting up a measurement area. The main window displays a 3D grid with a red line indicating the measurement area. The right sidebar shows the 'Sensor' settings, with the 'Measurement Range' value highlighted in red.

Surface

Profile: Top

Top (400 μ s)

Sensor

Main: 92307

Active Area | Exposure | Spacing | Advanced

Select | Reset | Acquire

	Min	Value	Max	
X Field of View:	0	923.5	1468.75	mm
Measurement Range:	0	686.25	638.125	mm
X Start:	-1000	468.75	77.5	mm
Z Start:	-765	76.875	78.75	mm

Tracking Window

Transformation

Alignment: **ALIGNED**

Surface Generation

Part Detection

Filters: **ENABLED**

Displayed Outputs

2

Frame Index

Quick Edit

EN

Set Exposure

- Click on **Exposure**.
- Set the exposure according to the product type and mounting height.
 - This value should typically be 600 -1000 μ s

The screenshot displays the software interface for a 3D scanner. The top navigation bar includes 'Manage', 'Scan', 'Model', 'Measure', 'Output', and 'Dashboard'. The 'Scan' tab is active. A status bar shows 'CPU: 0%' and 'Speed: 0 Hz'. The main workspace is a 3D grid with X and Z axes in millimeters. The right-hand panel contains various settings:

- Option:** 'Acquire Intensity' is unchecked, and 'Uniform Spacing' is checked.
- Trigger:** 'Max Frame Rate' is set to 768.768.
- Sensor:** 'Main 75505' is selected.
- Exposure Settings:** The 'Exposure' tab is selected. 'Exposure Mode' is set to 'Single'. The exposure value is set to 800 μ s.
- Alignment:** Status is 'ALIGNED'.
- Surface Generation:** Status is '+'.
- Part Detection:** Status is '+'.
- Filters:** Status is 'ENABLED'.

At the bottom, the interface shows 'Frame Index: 13', 'Quick Edit', and 'EN'.

Setup Part Detection

- Expand the **Part Detection** section.
- Set **Height Threshold** to 10mm.
- Set **Min Area** to 5,000mm²
- Set **Max Part Length** to match the longest expected item length
- Leave all other settings alone.

The screenshot displays the software interface for part detection. The main window shows a 3D grid with X and Z axes ranging from -1600 to 1600 mm. The right-hand panel contains the configuration settings for the Part Detection section. The settings are as follows:

Setting	Value
Height Threshold	5 mm
Threshold Direction	Above
Gap Width	200 mm
Gap Length	200 mm
Padding Width	0 mm
Padding Length	0 mm
Min Area	10000 mm ²
Max Part Length	3000 mm
Edge Filtering	Enabled
Edge Filtering Width	5 mm
Edge Filtering Length	5 mm

The interface also shows a top menu bar with options like Manage, Scan, Model, Measure, Output, and Dashboard. A status bar at the bottom indicates 'Frame Index: 1' and 'Quick Edit'.

Put in Run Mode

- Expand the **Trigger** section and change the source from **time** to **encoder**.
- Make sure the device is in run mode.
- Click the record button to the left of the run mode button.
 - This will record data for troubleshooting later.

The screenshot displays the software interface for a scanning device. The top navigation bar includes 'Manage', 'Scan' (active), 'Model', 'Measure', 'Output', and 'Dashboard'. A status bar shows 'CPU:' and 'Speed: 270'. The main window is divided into several panels:

- Surface Plot:** A 2D grid plot with X and Z axes ranging from -600 to 600 mm. The plot is titled 'Top (400 μs)'. The Z-axis is labeled 'Z (mm)' and the X-axis is labeled 'X (mm)'. The plot area is currently empty.
- Scan Mode Panel:** Contains three view options: 'Video', 'Profile', and 'Surface'. Below these are 'Option' checkboxes for 'Acquire Intensity' and 'Uniform Spacing', both of which are checked.
- Trigger Panel:** Shows 'Max Frame Rate: 269.855'. The 'Source' dropdown menu is set to 'Time' and is circled in red. Below it is a 'Frame Rate' slider set to 'Max Speed' Hz and a 'Gate on External Input' checkbox.
- Sensor Panel:** Shows 'Main' sensor with ID '92307'. Below it are tabs for 'Active Area', 'Exposure', 'Spacing', and 'Advanced'. At the bottom are 'Select', 'Reset', and 'Acquire' buttons, and a table with columns 'Min', 'Value', and 'Max'.

Red annotations highlight the 'Record' button (a red dot) and the 'Run' button (a red square) in the top right corner, and the 'Time' source dropdown in the Trigger panel.

Validate Dimensions and Output

- Click on the **Measure Tab** at the top
- Start the system and validate dimensions.
- The units are in inches by default but can be changed using the scaling factor below in the filter menu. Set to 1 for mm.

The screenshot displays the software interface for 3D surface measurement. The top navigation bar includes tabs for Manage, Scan, Model, **Measure** (highlighted with a red arrow), Output, and Dashboard. The main workspace shows a 3D model of a mechanical part with a bounding box. The Y-axis is labeled 'Y (mm)' and the X-axis is labeled 'X (mm)'. A legend on the right lists color-coded values: 819.929 (black), 734.944 (magenta), 649.958 (red), 564.973 (yellow), 479.988 (green), 395.003 (cyan), and 310.018 (blue). The 'Surface Bounding Box Advanced' panel on the right shows parameters for Stream (Surface), Source (Top), Rotation (checked), Use Percentile Filter (checked), High Percentile (95%), and Low Percentile (1%). The 'Measurements' section lists Width (48.480), Length (48.607), Height (31.881), Height from 0, and Z Angle. The 'Filters' section shows a Decision filter with Min and Max values set to 0. The 'Tools Diagram' shows a sequence of operations: Surface Arithmetic, Gocator 2490 - 75154, Surface Bounding Box Advanced, and Script. The 'Displayed Outputs' section at the bottom left shows a list of outputs.

Validate Dimensions and Output Cont'd



- Navigate to the **Dashboard tab** at the top.
- Open Realterm or Qbit IMS and connect to the sensor data port.
 - **10.1.100.100** Port 2112
- Run a test piece.
- Check that dimensions in terminal match those in the dashboard.

The screenshot displays the software interface with a 3D model of a part on the left, a terminal window in the center, and a stats table on the right. The 3D model shows a part with dimensions highlighted in various colors. The terminal window shows the serial data: `48607, 48480, 33381`. The stats table shows the following data:

Name	ID	Value	Min	Max	Avg	Range	Std	Pass	Fail	Invalid	Over...
Surface Bounding Box Advanced	5										
Width	0	48.480	0.333	48.515	10.840	48.182	18.473	0	27	2	0
Length	1	48.607	0.394	48.687	10.198	48.293	16.669	0	35	2	0
Height from 0	2	31.881	1.483	94.315	19.506	92.832	29.324	0	34	2	0
Script	4										
Max Average Difference	9	33.381	0.000	33.381	6.262	33.381	10.033	60	0	2	12

Save Permanent

Save permanent by clicking the save icon next to the job name. This will ensure the settings will remain if the power is cycled.

The screenshot displays the software interface for a 3D measurement task. The main workspace shows a 'simplified view' of a part with various colored regions (pink, yellow, blue) and a green circle. The axes are labeled X (mm) and Y (mm). The top toolbar includes buttons for Manage, Scan, Model, Measure, and Dashboard. A red arrow points to the Measure button. The 'Script' panel on the right shows a code snippet for calculating 'Max Height' and a 'Measurements' table with a value of 33.381.

Surface - [Script/Max Average Difference]

Surface Arithmetic Add

Gocator 2490 - 75154

Surface Bounding Box Advanced

Script

```
1 double MaxHeight;  
2  
3 MaxHeight = Measurement_Value(2)+1.5;  
4  
5 Output_Set(MaxHeight,1);
```

*Press save button or 'Ctrl+S' to apply changes.
Press 'Esc' to exit full screen.

Measurements

Output: Add

Max Average Difference 33.381

ID: 9

8

> Frame Index: 1 Quick Edit EN