

# Cubiscan™ S9

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## Operations and technical manual

Version 1.0

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**CUBISCAN®**

# Cubiscan™ S9 operations and technical manual

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### CAUTION

The Cubiscan S9 should only be serviced by qualified personnel.

Observe precautions for handling electrostatic sensitive devices when setting up or operating the Cubiscan S9.

Disconnect all power to the Cubiscan S9 before servicing or making any connections.

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This document was created with the purpose of providing the most accurate and complete information. If you have comments or suggestions for improving this manual, contact Quantronix at [manual@Cubiscan.com](mailto:manual@Cubiscan.com).

Manual updated February 13, 2023.

# CHAPTER 1

## PRODUCT DESCRIPTION

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The Cubiscan S9 is a pallet dimensioning tower designed to integrate with stretch wrapping machines that utilize a rotating turntable. The Cubiscan S9 uses an eye-safe infrared laser to detect and measure the pallet as it rotates on the turntable platform while a camera inset in the dimensioning tower takes a photo of the freight to be used with the dimensioning data.



Figure 1  
*Cubiscan S9*

The Cubiscan S9 can dimension various parcel types including palletized freight, large crates, and large irregular items for use in storage and outbound shipping.

# Specifications

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## Power requirements

95-240 VAC, 47-96 Hz, single phase

## Environmental

Operating temp: 14° to 104° F (-10° to 40° C)

Humidity: 0 to 85% non-condensing

## Measuring capacities

Measurement time: <15 seconds

Dimensional increment: 0.8 in (2 cm)

Max measurement area: 4.9'L x 4.9'W x 8.2'H (150x150x250 cm)

Min package size: 8"L x 8"W x 8"H (20x20x20 cm)

Laser class: 1 (eye-safe), according to DIN EN 60825-1

## Physical

Length: 8.0-59.0 in (20.0-150.0 cm)\*

Width: 8.0-59.0 in (20.0-150.0 cm)\*

Height: 8.0-98.0 in (20.0-250.0 cm)\*

Wrapping machine: The dimensions of a shrink wrapping machine depend on the manufacturer.

\* Tool dimensions are may differ according to client specifications.

## User interface

Inputs: Integrated display and keypad

Data output: .csv, .txt, .xml, .jpg file output & ftp transfer

TCP/IP network transfer

ODBC database transfer

Web services

## Part Description



Item	Description
Stretch-wrap turntable	Place palette on turntable for dimensioning and stretch-wrapping.
Integrated stretch wrap-machine	Stretch-wrapping machine is integrated into the tool to provide dimensioning during the wrapping process.
Dimensioning tower	Dimensioning tower houses infrared sensors for dimensioning, as well as, a camera to provide images of the palette to be included with the output data.



Figure 2  
CS S9 Details



# Chapter 2

## Getting Started

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This chapter provides instructions for powering the Cubiscan S9 on and off. It also describes the different windows and functions that are found on the home screen.

### Powering the S9 On/Off

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Before powering the system on or off, ensure that the measuring area is clear.

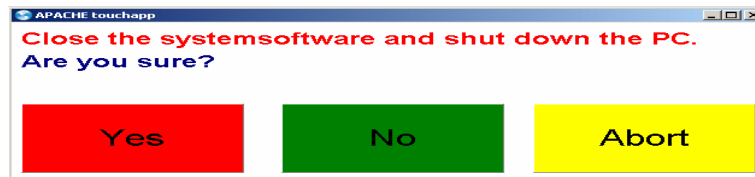
To turn the Cubiscan S9 on, locate the red knob located on the control box, see Figure 3. Turn the red knob clockwise into the ON position.



Figure 3  
*On/Off Knob*

Once the system has been powered on, it will display the home screen. When the status button turns green (located in the status bar), the Cubiscan S9 is ready to measure.

To turn the Cubiscan S9 off, touch the **CUBISCAN** logo located in the information bar. The following message will appear:



If you really do want to turn the Cubiscan S9 off, tap **Yes**. The system will then shut down. Turn the red knob counterclockwise into the off position. Allow at least 20 seconds to pass so that all power can be drained from the system before turning it back on.

# Cubiscan S9 Touchscreen

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The Cubiscan S9 is operated and configured using the touchscreen located on the backside of the tower.



Figure 4  
Touchscreen

Never use a sharp or hard-tipped object to tap on the touchscreen. It is fragile and can scratch or break. You can tap lightly on the screen with your fingertip, or you can use the eraser end of a pencil or a stylus with a soft point. Use a light touch just hard enough for the screen to respond.

# Cubiscan S9 Home Screen

This chapter describes the different areas and windows found on the home screen.

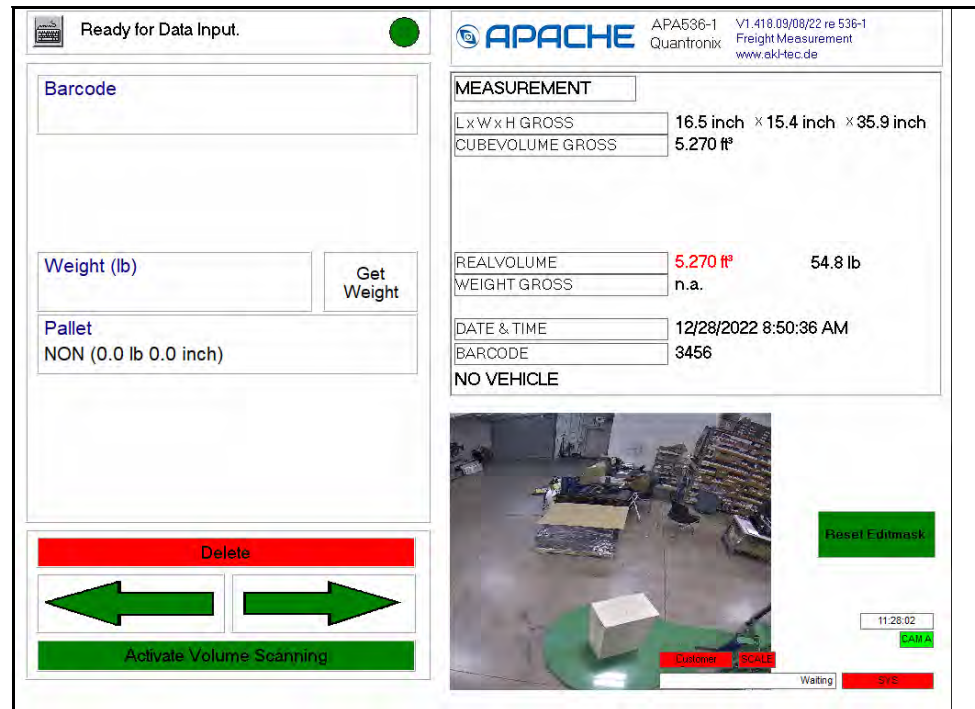


Figure 5  
Home Screen

## Status Bar

The status bar reports the Cubiscan S9's current status. This bar also displays the status button.



Figure 6  
Status Bar

- When the status button is green, the system is ready to perform measurements. The data of the last measurement can be read in the measurement results window.
- When the status button is red, the system is in the measurement process. When the Cubiscan S9 is in the measurement process the measurement area should not be entered, and freight should not be moved.
- When the status button is yellow, the system has completed the measurement process and is resetting the system in preparation for another measurement. The measuring arm will return to the home position.

Tapping the status bar causes the following keyboard to appear on the screen.

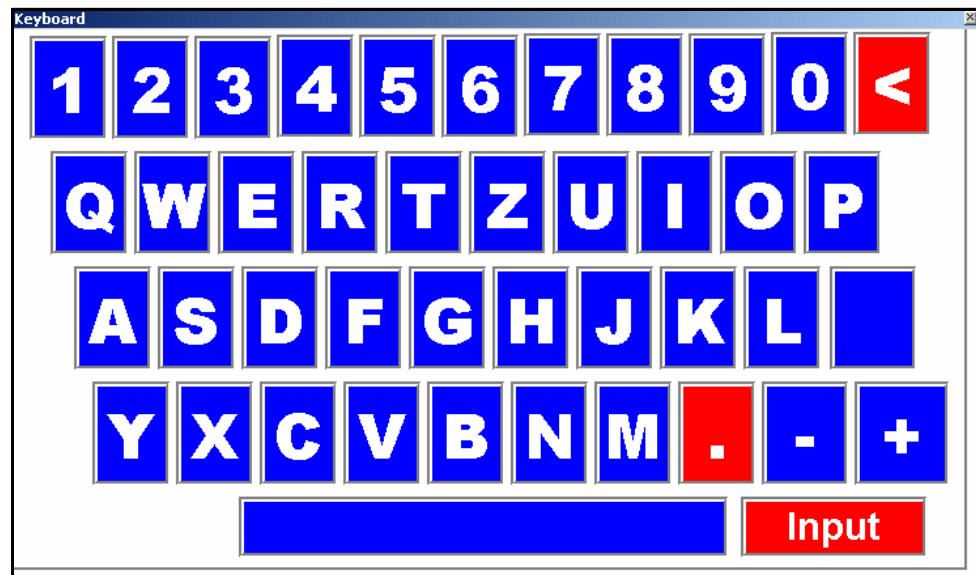


Figure 7  
Keyboard

This keyboard allows you to enter letters as well as numbers. To exit this window tap the **X** in the top right corner.

# Options Window

In this window you can select the options for volume, mask out pallet, and the barcode number.

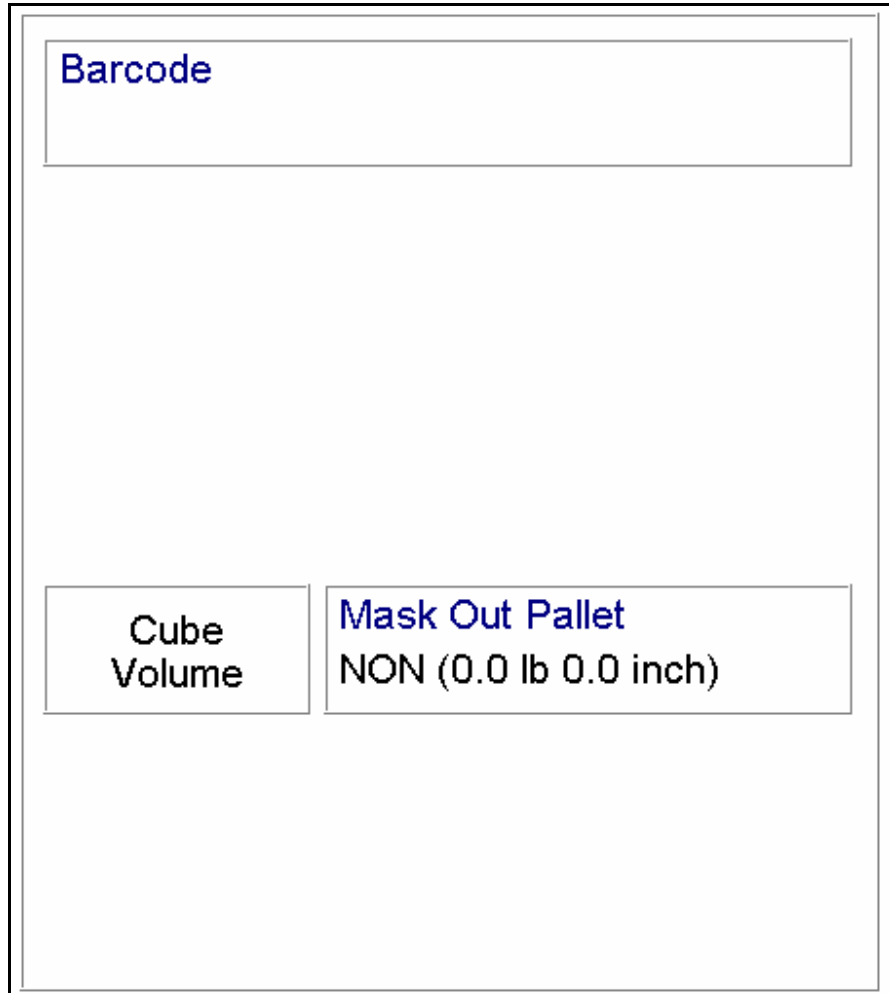


Figure 8  
Options Window

**Barcode** The Barcode field is a mandatory entry field and must have a value before the Cubiscan S9 can begin the measurement process. Tapping on this field brings up the following barcode entry screen.

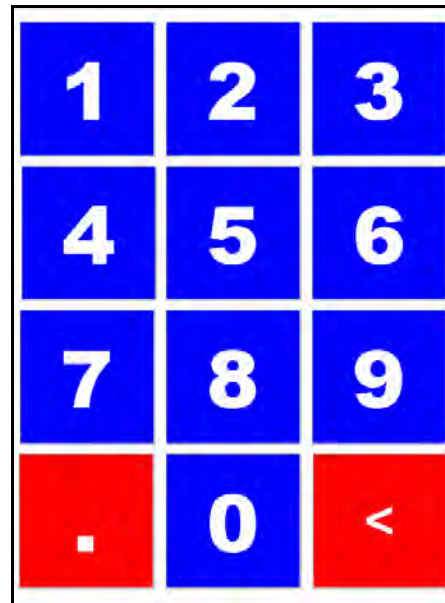
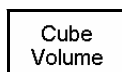


Figure 9  
Barcode Entry Screen

To exit this window hit the left navigation arrow, located in the navigation section.

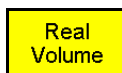
To enter a barcode in this field you can either scan a barcode or manually key in the barcode number using the barcode entry screen.

### Cube Volume



The cube volume button is the default setting. Cube volume is the volume of the smallest possible cube that the freight could fit into.

### Real Volume



You can select the real volume option by tapping the **Cube Volume** button once. Real volume (or water volume) is the volume without air.

### Pallet Inclusion



You can select the pallet inclusion option by tapping the **Cube Volume** button twice. If you select this option the pallet will be included in the measurement. For more information on this feature see "Pallet Inclusion" on page 27.

## Mask Out Pallet

Tap this button to mask out a pallet. When you tap this button the following screen appears.

Mask Out Pallet  
NON (0.0 lb 0.0 inch)

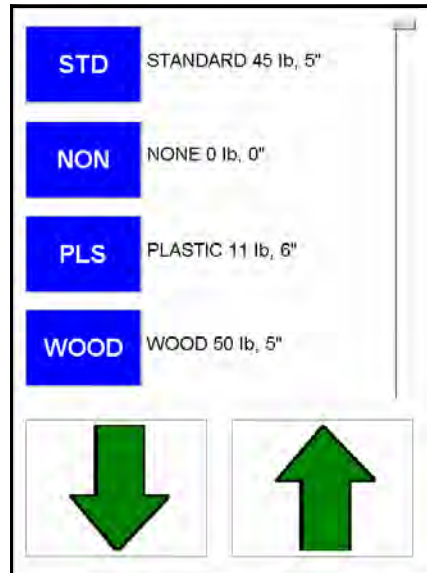


Figure 10  
*Mask Out Pallet Options Screen*

Your pallet options may be different depending on how your system was configured.

For more information on this feature see "Mask Out Pallet" on page 30.

## Navigation Section

From this section you can navigate through the Cubiscan S9 screens.

Tapping the **Delete** button will delete any value that is selected, such as a barcode number. The **Delete** button deletes values one at a time.

The arrow buttons allow you to navigate through the various screens. The back arrow takes you back to the Measurement Results screen. The forward arrow takes you through the screens in the following order.

1. The Barcode Entry screen.
2. The Mask Out Pallet Options screen.



3. The Pre-Measurement screen.

Tapping the **Activate Volume Scanning** button will also take you to the Pre-Measurement screen. For more information on taking measurements see Chapter 3 "Operation" on page 18.

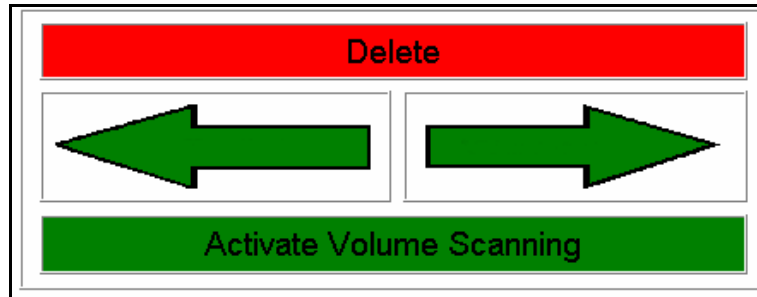


Figure 11  
Navigation Section

## Information Bar

The information bar displays information about the Cubiscan S9.

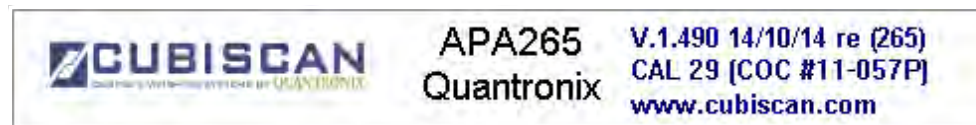


Figure 12  
Information Bar

To shut down the system tap the **CUBISCAN** logo. For more information about turning the Cubiscan S9 off, see "Powering the S9 On/Off" on page 5.

## Measurement Results Window

This window displays the most recent measurement results. By tapping on the various measurements you can display each measurement in different units (e.g., m, inch, kg, lb). You can close this window by tapping on it again or by tapping anywhere else on the screen.

MEASUREMENT RESULTS	
L x W x H GROSS	51.5 inch x 40.0 inch x 11.5 inch
CUBEVOLUME GROSS	13.913 ft <sup>3</sup>
REALVOLUME	11.560 ft <sup>3</sup>
WEIGHT GROSS	n.a.
DATE & TIME	4/22/2015 3:00:33 PM
BARCODE	4-0896-08968
<b>NO VEHICLE</b>	<b>LEGAL FOR TRADE RESULT</b>

Figure 13  
Measurement Results Window

# Image Window

The image window displays the image taken of the freight. The image includes a time and date stamp, the barcode number, the volume, and the measurements of the freight.



Figure 14  
Image Window

If you swipe the image to the left, the image window displays the overview image. The overview image shows the height of the image using a color scale.

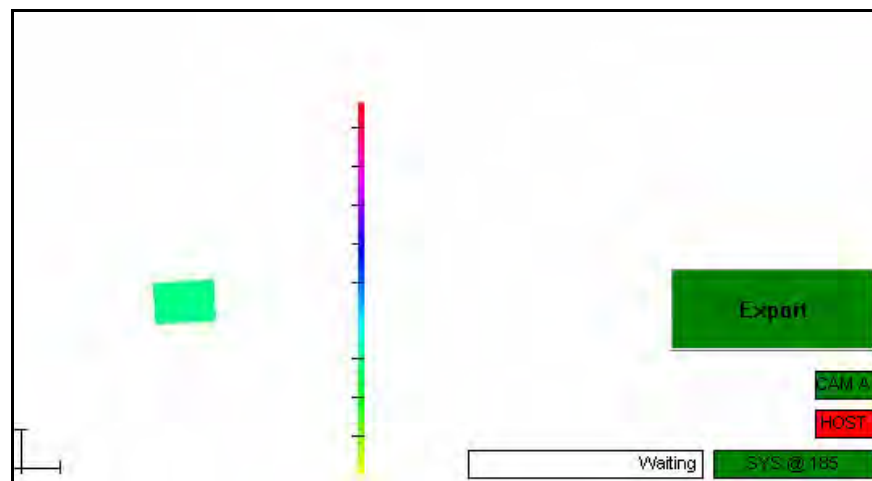


Figure 15  
Overview Image

## Image Window Options

The following section describes the various functions found in the Image Window.



Tapping the **Export** button will export all the stored measurement information that has not yet been exported. The information is exported to the file location that was specified when your Cubiscan S9 was installed.



The **Cam A** indicator displays the status of camera A. You may have more or less camera buttons depending on how many, if any, cameras you have.

When this indicator is white, it means that the camera connected successfully after the Cubiscan S9 was turned on.

When this indicator is green, it means that it has successfully captured an image.

When this indicator is red, it means that the camera is not connecting to the Cubiscan S9.



The **Host** indicator displays the connection status of a TCP/IP host, such as a forklift or barcode scanner.

When this indicator is green, it means that the Cubiscan S9 is successfully connected to the TCP/IP host.

When this indicator is red, it means that the Cubiscan S9 is not connected to the TCP/IP host.



The **SYS@365** indicator displays the status of the system software (this button may appear different on your screen).

If this indicator is green, the system software is connected.

If this indicator is red, the system software is not connected.



The **Status** indicator displays the status information of the Cubiscan S9.

The **Waiting** status means that the Cubiscan S9 is waiting and ready to begin a measurement.

The **Measuring** status means that the Cubiscan S9 is currently measuring freight.

The **Calculating** status means that the Cubiscan S9 is calculating the measurement information and will display it shortly.

**NOTE** 

*A black screensaver appears after a few minutes of inactivity, tapping the screen should bring the display back up.*

This chapter provides instructions for operating the Cubiscan S9.

## Measuring Freight

To measure freight, complete the following steps.

1. Power on the Cubiscan S9. For information on how to do this, see “Powering the S9 On/Off” on page 5.
2. Make sure that the freight you want to measure is on the stretch wrap turntable. The freight must be positioned on the turntable so as not to extend past the sensor view. As a rule of thumb, the pallet and contents must be at least 20 inches away from the tower base.



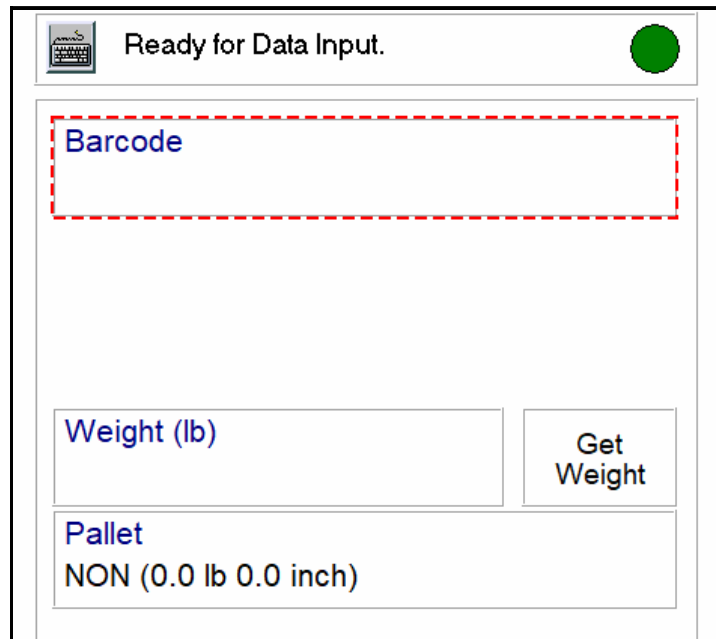
Figure 16  
Turntable

**NOTE** >

*Turntables may vary according to your particular setup. However, the S9 is designed to work with most stretch wrap machines. If you have questions about*

whether the S9 will work with your particular machine, please contact **Quantronix Technical Assistance** at (801) 451-7000 for assistance.

3. Scan or enter a barcode into the barcode field.



The screenshot shows a software interface with a title bar that reads "Ready for Data Input." and a green circular indicator on the right. Below the title bar is a large rectangular field labeled "Barcode" in blue text, which is outlined with a red dashed border. Below this field are two input fields: "Weight (lb)" and "Pallet". The "Weight (lb)" field is empty, and the "Pallet" field contains the text "NON (0.0 lb 0.0 inch)". To the right of the "Weight (lb)" field is a button labeled "Get Weight".

Figure 17  
Barcode

4. Depending on the set up of your stretch wrap machine, the weight of the pallet may be received from the turntable by tapping **Get Weight** button. If your turntable does not have weighing capacity, the weight may be manually entered. The weight field may also be left empty if

desired. Instead of a value, n.a. will be displayed in the weight field instead.

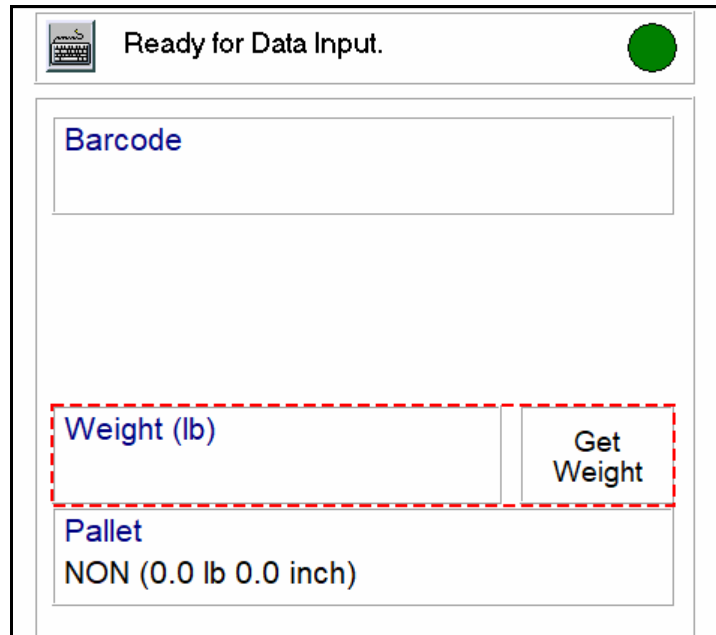


Figure 18  
Weight

5. Select your preferred volume and pallet options or use the default options. For more information, see "System Configuration" on page 27.
6. To begin the measurement process, start the stretch wrap turntable. After a few rotations, tap the green **Active Volume Scanning** button.

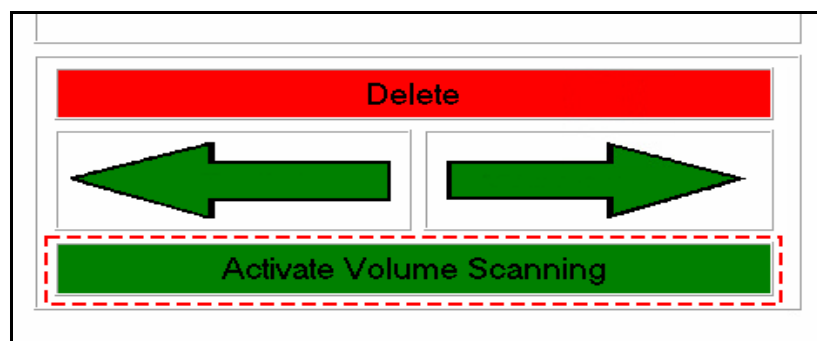


Figure 19  
Volume scanning

7. The Cubiscan S9 will dimension the pallet while it is being stretch wrapped. This process usually takes about 15 seconds. During the scanning you will notice the stack lights on the side of the S9 toggle



from red to yellow to green.



Figure 20  
Stack lights

When the green stack light is illuminated, the measurement is complete. The values will be displayed in the measurement results window. An image of the pallet will display in the image window.

MEASUREMENT		
LxWxH GROSS	16.5 inch × 15.4 inch × 35.9 inch	
CUBEVOLUME GROSS	5.270 ft <sup>3</sup>	
REALVOLUME	5.270 ft <sup>3</sup>	54.8 lb
WEIGHT GROSS	n.a.	
DATE & TIME	12/28/2022 8:50:36 AM	
BARCODE	3456	
NO VEHICLE		

Export

CAM A

HOST1

Customer SCALE

Waiting

513 0101

Figure 21  
Measurement results

8. You can then export the information by clicking **Export**. For more information on exporting measurement results, see “Image Window Options” on page 16.

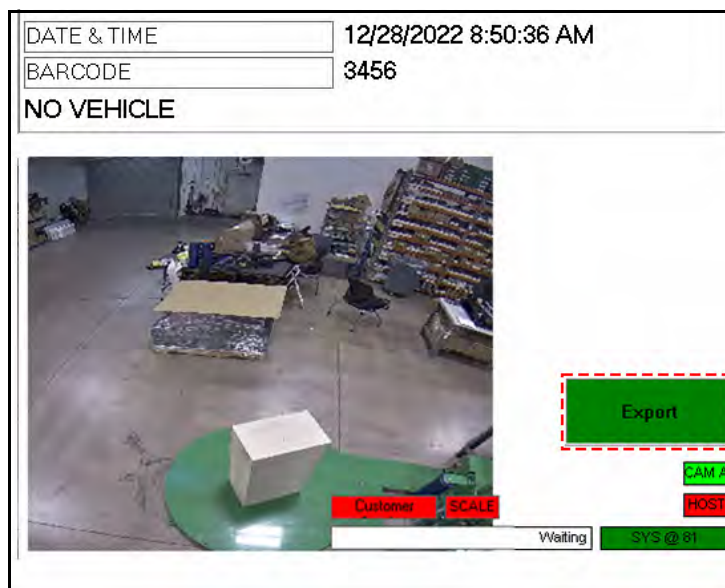


Figure 22  
Export

## Measuring Oversized Freight

Oversized freight is any freight that does not fit into the measurement area. To measure oversized freight, complete the following steps.

1. Power on the Cubiscan S9. For information on how to do this, see “Powering the S9 On/Off” on page 5.
2. Select your preferred volume and pallet options or use the default options. For more information see “System Configuration” on page 27.
3. Enter a barcode using your preferred method.

4. Tap Activate Volume Scanning. The following Pre-Measurement screen appears.

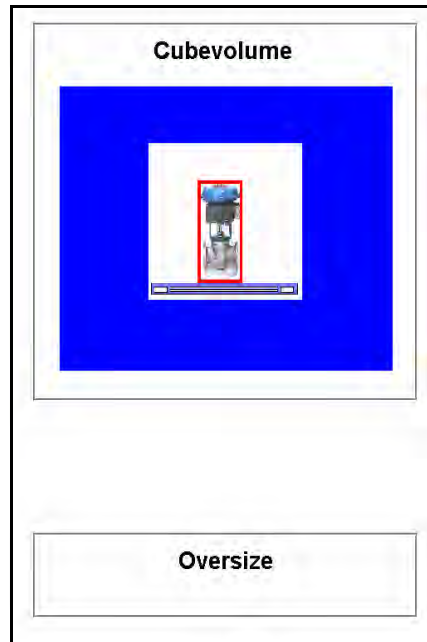


Figure 23  
Pre-Measurement Screen

5. Tap the **Oversize** button. The Oversize Manual Measurement window appears.

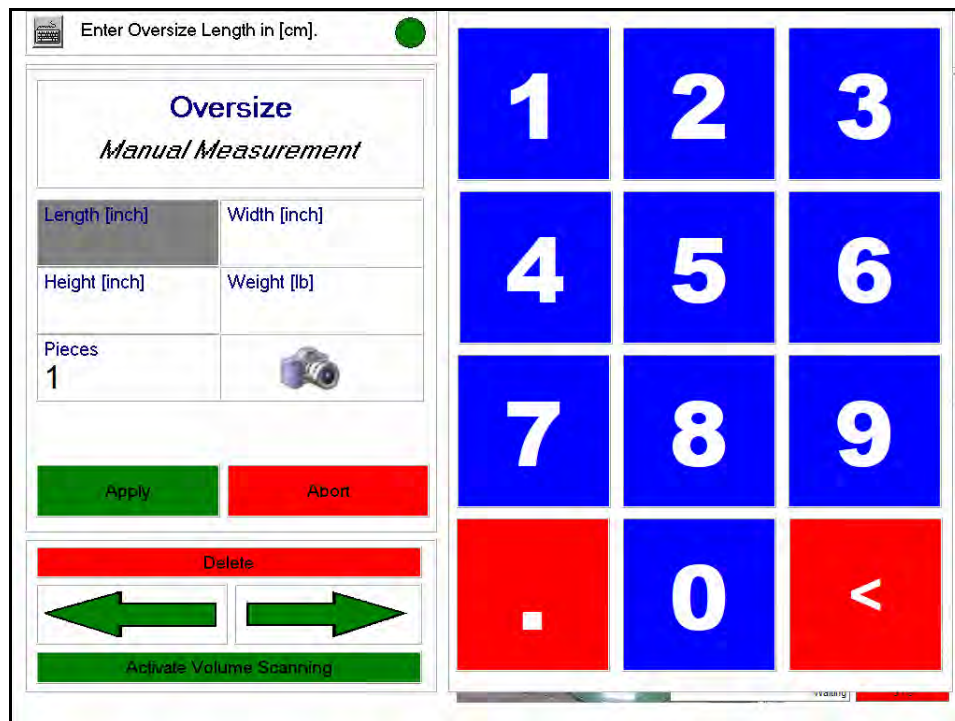


Figure 24  
Oversize Manual Measurement Window

6. Measure the length, width, and height of the freight and enter the values into the appropriate fields. All fields must contain a value before the measurement can take place.
7. Enter the number of pieces that are in the measurement field (this field may not be available, depending on your installation preferences).
8. If you do not want the Cubiscan S9 to capture an image, tap the camera graphic located on the oversize manual measurement window. A red X will appear over the graphic.
9. When you are finished entering all the appropriate information, tap **Apply**. The measurement results will be displayed. If you do not want to complete the oversize measurement process, tap **Abort**.

MEASUREMENT RESULTS	
LxWxH GROSS	645.0 inch×45.0 inch ×68.0 inch
CUBEVOLUME GROSS	1142.189 ft³
REALVOLUME	1142.189 ft³
WEIGHT GROSS	n.a.
DATE & TIME	4/22/2015 3:11:26 PM
BARCODE	8-0897-08970
NO VEHICLE	LEGAL FOR TRADE RESULT

Figure 25  
Oversized Measurement Results

The image window will display a picture of whatever is in the measurement area at the time.

If you specified that the Cubiscan S9 should not capture an image, the following screen is displayed.



Figure 26  
Oversized Measurement Results, No Image

# Chapter 4 Configuration

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This chapter provides instructions for using the Cubiscan S9 touchscreen to set up preferences and operate special features that the Cubiscan S9 offers.

## System Configuration

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The following options are settings that you can select to configure the Cubiscan S9 to your specifications.

### Pallet Inclusion

If you would like to include a pallet in your measurement, complete the following steps:

1. Enter a barcode using your preferred method.
2. Select Pallet Inclusion by tapping on the **Cube Volume** button twice.
3. Select the pallet that you would like to include by tapping **Mask Out Pallet**. Use the arrows to scroll through the pallet options as needed.
4. Tap **Activate Volume Scanning**.

5. Tap the graphic outlined in red to start the measurement process (shown below).

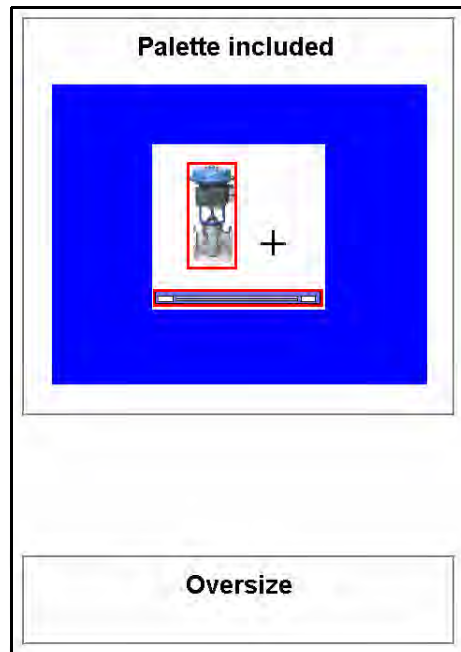


Figure 27  
*Palette Included*



The measurement results window will display the net and gross results.

MEASUREMENT RESULTS	
L x W x H GROSS	52.0 inch x 40.0 inch x 11.5 inch
CUBE VOLUME GROSS	13.843 ft <sup>3</sup>
L x W x H NET	47.5 inch x 38.0 inch x 7.5 inch
CUBE VOLUME NET	7.834 ft <sup>3</sup>
REAL VOLUME	6.783 ft <sup>3</sup>
MASKED OUT PALLET	WOOD 50 lb, 5"
DATE & TIME	4/22/2015 3:17:54 PM
BARCODE	H-08972
NO VEHICLE	LEGAL FOR TRADE RESULT

Export

CAM A

POST

Waiting

Customer SCALE

Figure 28  
Pallet Included Measurement Results

The pallet that was selected for inclusion will appear in the **MASKED OUT PALLET** field. This field merely displays the pallet that was selected, not necessarily that a pallet was masked out.

If you select this option and the Cubiscan S9 cannot locate a pallet in the measuring field (or no pallet was selected in the Mask Out Pallet window), the following message will appear.

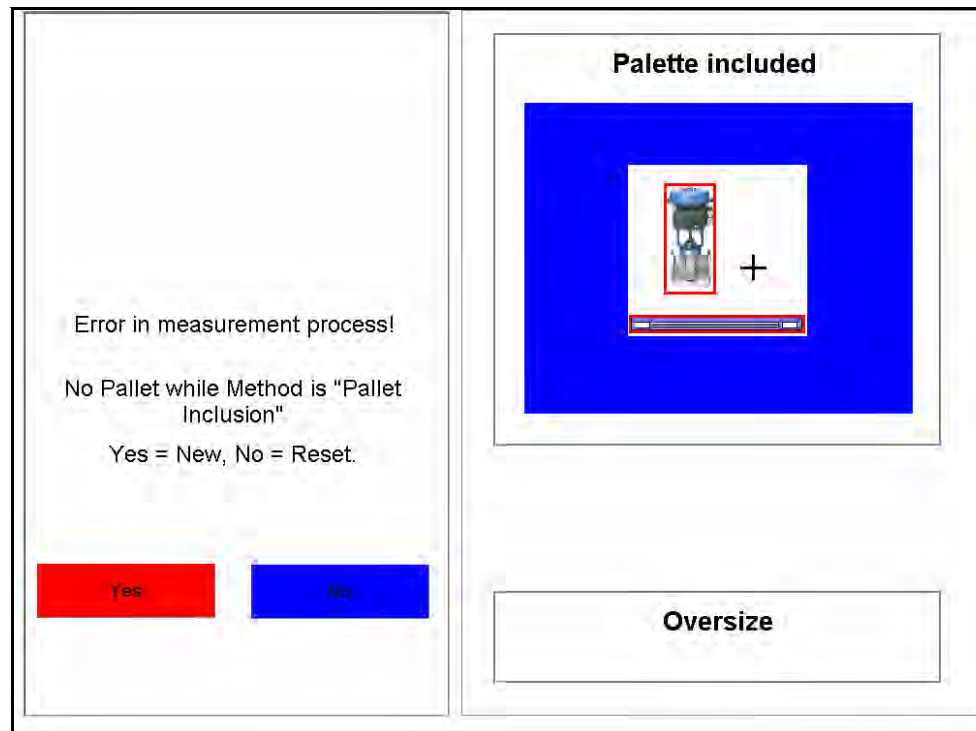


Figure 29  
*Pallet Inclusion Error*

Select **Yes** if you would like to begin a new measurement.

Select **No** if you would like to try measuring again using the same barcode.

## Mask Out Pallet

If you would like to mask out (or hide) the pallet, complete the following steps.

1. Enter a barcode using your preferred method.
2. Tap **Mask Out Pallet**.
3. Select the pallet that you would like to mask out. You can use the arrows to scroll through the options.
4. Tap **Activate Volume Scanning**.

5. Tap the graphic outlined in red to start the measurement process.

The measurement results window will display the net and gross results as well as the pallet that was masked out.

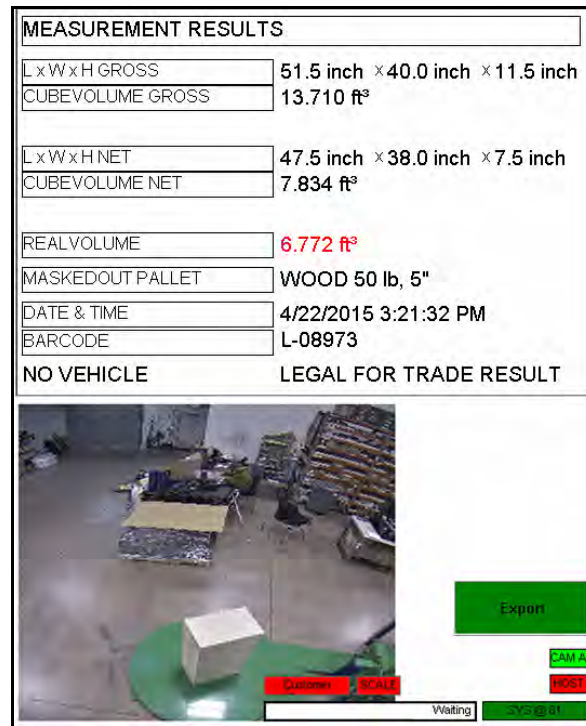


Figure 30  
Mask Out Pallet Measurement Results

## Special Features

The following options are special features that the Cubiscan S9 offers.

### Floor Scale

The Cubiscan S9 can be integrated with a floor scale. When a scale is set up with the Cubiscan S9, the weight is displayed in the measurement results window. If you would like to configure your Cubiscan S9 with a floor scale, contact your system integrator.

## Number of Pieces

**Number of Pieces**

1

This special feature allows you to duplicate measurements. If you have multiples of the same type of freight, you can instruct the Cubiscan S9 to report however many duplicates is needed. These duplicates will be included when the measurement information is exported. If you would like to enable this feature, contact your system integrator.

# Chapter 5

## Maintenance

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This chapter provides information on the care and maintenance of the Cubiscan S9. Routine maintenance and careful handling will help keep the Cubiscan S9 in good operating condition and prevent service call or repairs.

### Touchscreen Care

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To clean the touchscreen, moisten a soft cloth with water, then gently wipe the screen clean with the cloth, do not spray liquid directly on the touchscreen.

Do not let the touchscreen come into contact with any sharp objects.

### Cleaning the Laser

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The laser head should be kept clean. While some dust normally won't interfere with sensor operation, they should be cleaned routinely to prevent the possibility of interference. The frequency with which the laser head should be cleaned depends on the Cubiscan S9's operating environment.

To clean the laser head, you will need the following.

- Ladder (or another means of reaching the Cubiscan S9 laser head)
- Clean, dry microfiber cloth

Remove the top cover of the upper tower to access the laser.

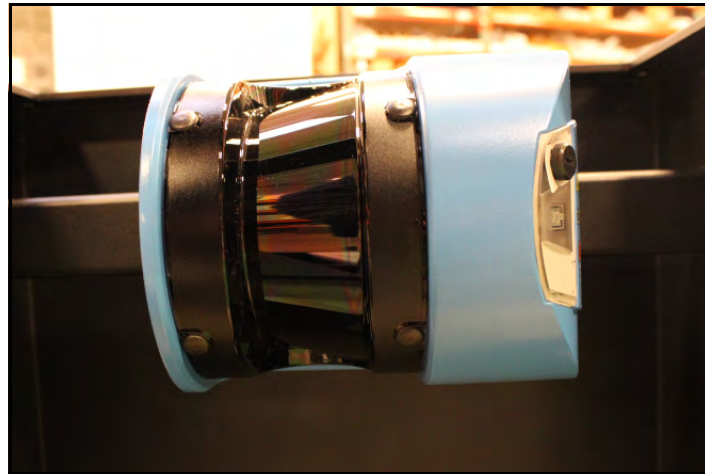


Figure 31  
*Cleaning laser*

Once the laser head is within reach, gently wipe the laser head surface with a dry microfiber cloth.

When you clean the laser head be sure that you are following all required safety regulations.

## Cleaning the Camera

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The camera should be cleaned routinely to ensure clear image capturing. The frequency with which the camera should be cleaned depends on the Cubiscan S9's operating environment.

To clean the camera, you will need the following:

- Ladder (or another means of reaching the Cubiscan S9 camera)
- Clean, dry microfiber cloth



Figure 32  
*Cleaning camera*

Once the camera is within reach, gently wipe the surface with a dry microfiber cloth.

When you clean the camera be sure that you are following all required safety regulations.

## Change the Control Box Filters



This chapter provides information on how to change the control box filters. These filters should be changed as needed, depending on the S9's operating conditions.

To change the filters, complete the following steps:

1. Locate the two filters located on the front and side of the control box (shown below).



Figure 33  
Control Box Filter



2. To remove the top filter, press the black tabs on the four sides of the filter and gently wiggle the filter guard free. It should simply pop out.



Figure 34  
Control Box Filter (inside)

3. To remove the bottom filter, first turn power off. Then, detach the fan by removing the four screws on each corner of the fan. Once the fan is detached, the bottom filter may be removed the same as the top filter.
4. Press the tab on the filter and pull outward to slide filter from the filter guard.

5. Clean the filters or replace them with new ones.

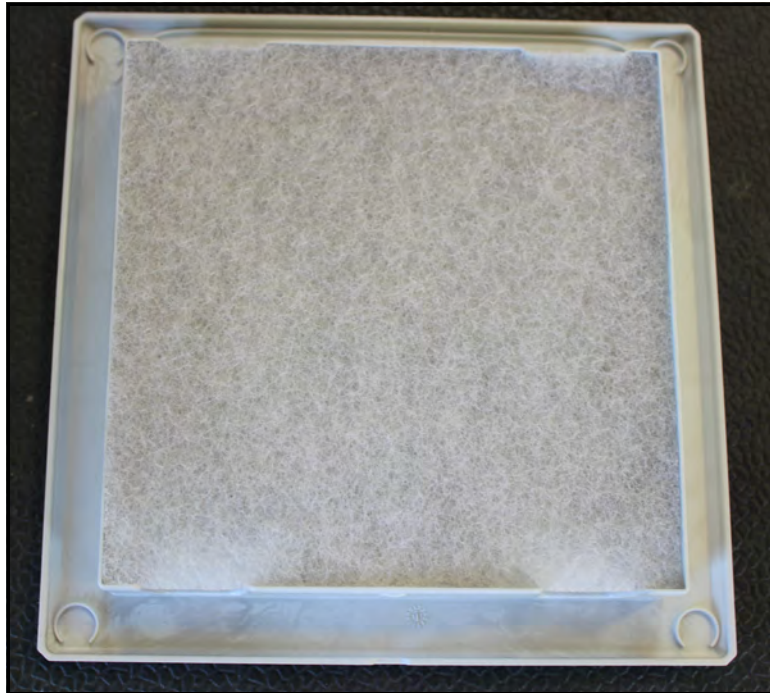


Figure 35  
Filter

6. Slide the filter back into the filter guard. Snap the filter guards back into place.

# Chapter 6

## Troubleshooting

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This chapter provides assistance in identifying and solving common problems with the Cubiscan S9. If you encounter problems not covered in this chapter, or if a defect is suspected, contact your system integrator or call **Quantronix Technical Assistance at (801) 451-7000** for assistance.

### General Information

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Keep debris out of the measurement area.

Ensure that the turntable withing the proper proximity to the Cubiscan S9.

### Error Messages

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This sections covers the most common error messages that the Cubiscan S9 generates.

## No Pallet while Method is "Pallet Inclusion"

This error message occurs if you have selected the pallet inclusion feature but not a pallet from the mask out pallet options window. The error message is shown below.

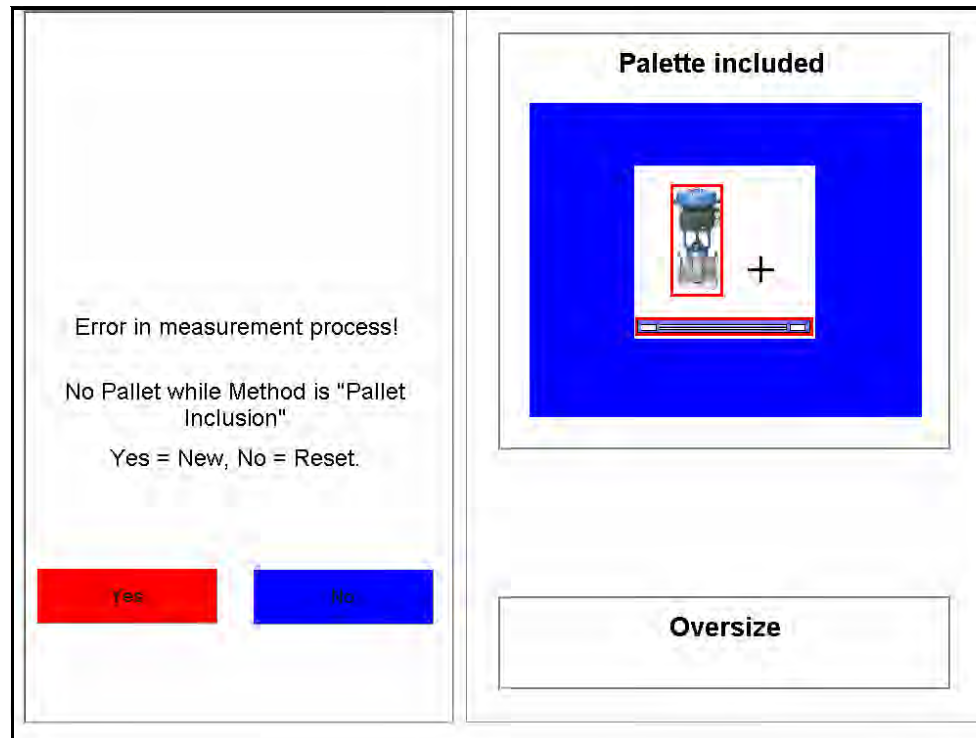


Figure 36  
No Pallet while Method is "Pallet Inclusion"

Tap Yes if you'd like to start a new measurement.

Tap No if you'd like to try measuring again using the same barcode.

## Object Exceeds Border

This error message occurs when there is an object in the measurement field that exceeds the measurement area's borders. Typically the error message also includes the side that is causing the error message to occur. In the example shown below, it reads **(LEFT/XMIN)**, meaning that the left side of the measurement area was exceeded.

Make sure that there is no debris in the measurement area.

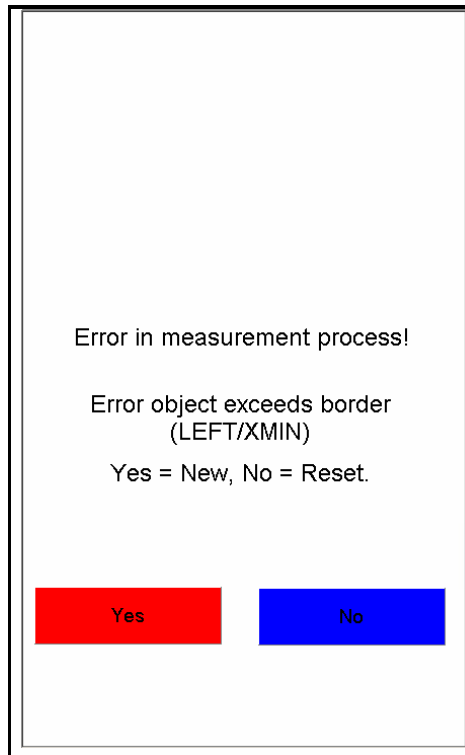


Figure 37  
*Object Exceeds Border*

Tap Yes if you'd like to start a new measurement.

Tap No if you'd like to try measuring again using the same barcode.

## Contamination on Laser



This error message occurs when there is contamination on the laser. This error message may come in a variety of forms but will typically include **DUST** as part of the error message. This means that the laser is blocked, either by dust or another object. See "Cleaning the Laser" on page 33 for more information.

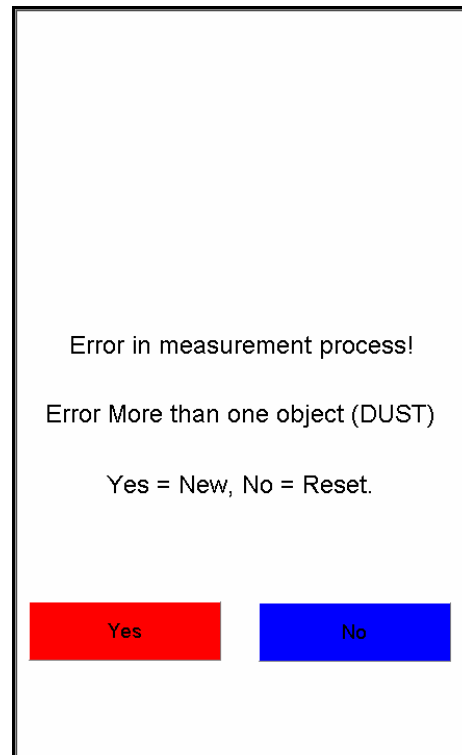


Figure 38  
Contamination on Lasers

## Cubiscan S9 Is Not Responding



If the Cubiscan S9 is not responding, try powering it off. For information on how to do this, see “Powering the S9 On/Off” on page 5. Make sure that the power switch is turned off for 20 seconds or more to ensure that all power has been drained from the system.

If powering the Cubiscan S9 off does not work, contact **Quantronix Service and Support** at (801) 451-7000 for assistance.

# Appendix A

## Parts List

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Following is a list of parts that can be purchased for the Cubiscan S9 as spare parts or if replacement is necessary.

Part No.	Description	Quantity/Unit