CubiScan® 125

Operations and Technical Manual

Version 1.3

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Cubing and Weighing Systems

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CUBISCAN
CUBING & WEIGHING SYSTEMS BY QUANTRONIX

CubiScan 125 Operations and Technical Manual

CAUTION

The CubiScan 125 should only be serviced by qualified personnel.
Observe precautions for handling electrostatic sensitive devices when setting up or operating the CubiScan 125.

WARNING

Disconnect all power to the CubiScan 125 before servicing or making any connections.

FCC Compliance Statement for American Users

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) This device must accept any interference received, including interference that may cause undesired operation.

EMI Compliance Statement for Canadian Users

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

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Statement of Warranty. Quantronix, Inc.'s, warranty obligations are limited to the terms set forth below: Quantronix (hereinafter referred to as the "Seller") warrants that its new product is in accordance with Seller's published specifications (or those agreed upon with Buyer in writing) at the time of sale or lease and that it is free from non-cosmetic defects in materials and workmanship under normal use for a period of one (1) year from the date of sale or the commencement date under a written equipment lease or rental agreement (the "Warranty Period"). If a hardware defect arises and a valid claim is received within the Warranty Period, at its option, Seller will either (i) repair the hardware defect at no charge, using new or refurbished replacement parts, or (ii) exchange the product or defective part(s) with a product or part(s) that are new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original product or part, or (iii) refund the purchase price of the product after Buyer has returned the product to Seller. For purposes of this warranty agreement, "Buyer" shall mean and refer to (i) the party which originally – whether from Seller directly, or from an authorized distributor, agent or reseller who is authorized by Seller – purchases, or leases under a written equipment lease or rental agreement, the Seller's product which is the subject of this warranty, or (ii) any subsequent purchaser or transferee that acquires valid title to the equipment within the Warranty Period.

In the event of the occurrence of a claim under this warranty, the Buyer shall have thirty (30) days to notify Seller in writing of the nature and specifics of the claimed defect; provided, however, that any and all claims must be received before the expiration of the Warranty Period. Failure to notify Seller within such time period shall void this warranty. Any claim of a warrantied defect is subject to inspection and analysis by Seller, prior to and/or after Buyer ships the product to Seller, to conclusively identify or confirm the nature and cause of failure and application of this warranty. In the event that the defect or damage is excluded from warranty the Seller may at its option either (i) provide Buyer with a quote to make any such repairs or replacements which are not covered under this warranty, or (ii) give Buyer twenty (20) days to pay for return shipping and upon receipt return the product to Buyer. If Buyer fails to pay for return shipping after twenty (20) days' notice and after repairs are made or warranty coverage is determined not applicable, Seller may dispose of or scrap the product.

This is a factory warranty and any defective components, mechanical or electrical, will be repaired or replaced, at the discretion and authorization of Seller, at Seller's facilities in Utah. It shall be the Buyer's responsibility to return the faulty equipment or components to

Seller at Buyer's expense as well as pay for all return shipping. All replaced or exchanged parts becomes property of Seller. Buyer shall first receive written confirmation to ship the product before sending it. Written confirmation to ship is not a guarantee that the defect or damage to the product is covered by this warranty. Seller is not obligated to pay for labor, material, or service charges involved in the removal, return, or installation of equipment or components. Seller reserves the right to incorporate improvements in material and design of its products without notice and is not obligated to incorporate the same improvements in equipment previously manufactured.

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This warranty shall not apply to equipment or components which has/have:

1. Been the subject of an accident, or repairs or modifications attempted or made and not authorized by Seller.
2. Been used with incompatible products.
3. Been operated under abnormal conditions, excessive heat or cold, highly corrosive environments, or in an unintended manner.
4. Not been operated or maintained in accordance with Seller's instructions.
5. Been subject to misuse or abuse, negligent handling, improper installation, accident, damage by fire, flood, snow, ice, water or other liquid damage, lightning, abnormal electrical condition and/or power surge, earthquake, or other act of God or events outside of Sellers control.
6. Had serial numbers altered, defaced or removed.
7. Been operated beyond capacity.
8. Not been manufactured by Seller including parts, accessories, or components which have been integrated into, used alongside of, or in conjunction with a product manufactured by Seller.

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What's New in Version 1.3?

Updated Sections

- Updated terminology and images to be consistent with the latest firmware version
- Added a firmware log, see "Appendix B Firmware Log" on page 86
- Deleted the Communications Protocol and made it a separate document

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.

Manual updated July 12, 2017.

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Chapter 1
Product Description

The CubiScan 125 is a static cubing system that uses a combination of sensing technologies to measure and weigh irregularly-shaped parts and components as well as boxed items. Small parts and items are measured with great precision using infrared sensing technology, while larger boxed items are measured with ultrasonic sensors.

The CubiScan 125 is commonly used to improve storage-space planning, for carton size selection, repacking, check-weighing, and shipment manifesting in medical, pharmaceutical, apparel, hardware, and consumer goods distribution. It has an integrated touchscreen display and outputs to a user-supplied PC. Capacity for the ultrasound sensors is 24 x 30 x 36 inches with a resolution of 0.1 inches; gate sensors can measure up to 18 x 18 x 12 inches with a resolution of 0.05 inches. The CubiScan 125 also includes an integrated, high-accuracy 50 x 0.005 lbs. scale.

Each unit has one active serial communication port, one Ethernet port, and one USB port. Proprietary interface software, called Qbit™, is available and allows for menu-driven operator control, data storage/transfer, and diagnostics. A mobile cart and useful accessories such as a portable power supply are available to create a completely mobile cubing, weighing, and identification workstation.

The CubiScan 125 combines powerful sensing technologies to create a flexible and economical solution for today's most demanding cubing and weighing applications.

Figure 1
CubiScan 125

Specifications

Power Requirements

100 – 240 VAC, 50 – 60 Hz

Environmental

Operating Temperature:	32° to 104° F (0° to 40° C)
Humidity:	0 to 90% non-condensing

Measuring Sensor

Infrared light beam and ultrasonic

Weight Sensor

Three load cells

Measuring Capacities

Measurement Range:	Ultrasound Sensors	Gate Sensors
Length:	2.0 to 24.0 in (5.0 to 60.0 cm)	0.10 to 18.00 in (0.2 to 45.0 cm)
Width:	2.0 to 30.0 in (5.0 to 80.0 cm)	0.10 to 18.00 in (0.2 to 45.0 cm)
Height:	2.0 to 36.0 in (5.0 to 90.0 cm)	0.10 to 12.00 in (0.2 to 30.0 cm)
Measurement Increment:	0.2 in (0.5 cm)	0.05 in (0.1 cm)
Measurement Time:	< 3 seconds	< 5 seconds
Object Colors:	All colors	Opaque

Weight Capacity: 0.005 to 50.000 lb (0.002 to 25.000 kg)

Weight Increment: 0.005 lb (0.002 kg)

Physical

Length: 44 in (112 cm)

Width: 44 in (112 cm)

Height: 51 in (130 cm)

Weight: 130 lbs (60 kg)

User Interface

Minimum PC Specifications:
Windows 10/8.1/8/7/XP/95/98/NT/2000, Pentium II processor, 20 megabytes of disk space, screen resolution setting of 800 X 600

Quantronix's QBIT™ software can be used to interface with the CubiScan 125.

Display:
Integrated TFT LCD touchscreen displays length, width, height, weight, unit of measure, 2D and height profile, and diagnostic codes.

Outputs:
Serial (1), Ethernet (1), USB (1)

Chapter 2
Setup

This chapter provides instructions for assembling and setting up the CubiScan 125. Perform the steps to set up the CubiScan 125 in the following order:

Unpacking

The CubiScan 125 is shipped in a single container with all components. The glass platform is packed in a separate cardboard box inside the crate.

Remove the wood slats and the packing material, and lift the CubiScan 125 components carefully from the crate. **Do not remove** the green foam shipping supports between the scale base and platform or the wire tie that holds the measuring gate in place; they will help prevent damage to the load cells and gate while you are assembling the CubiScan 125.

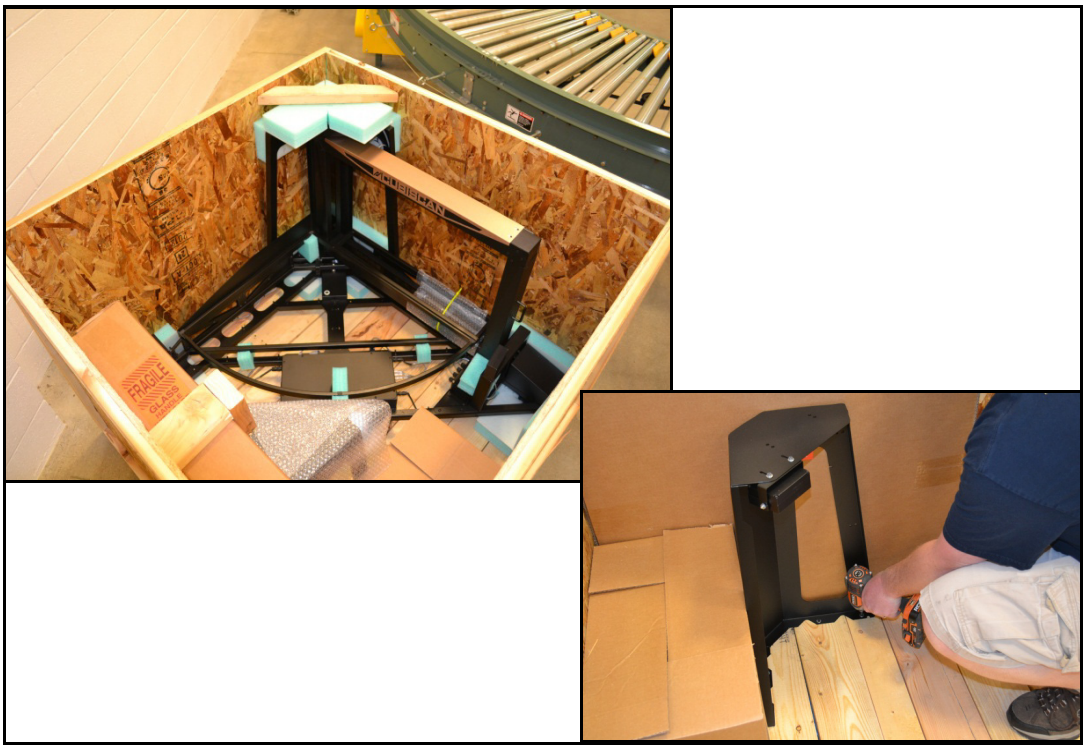


Figure 2
CubiScan 125 in Crate

Examine the container and the CubiScan 125 carefully for any damage. If, after unpacking, you discover any damage to the CubiScan 125, contact the carrier immediately.

Carefully remove the CubiScan 125 and its components from the crate, and place the CubiScan 125 on a solid, stable surface for assembly (see "Assembling the CubiScan 125" on page 7.

If any of the components or accessories are missing or defective, contact Quantronix.

Placement

The CubiScan 125 is designed to be operated in a warehouse environment; however, for proper operation the following conditions should be met if possible.

- Do not subject the CubiScan 125 to extremes in temperature or humidity. Locate the CubiScan 125 as far from open freight doors as

possible. Heaters or air conditioners should not blow directly on the CubiScan 125.

- Avoid placing the CubiScan 125 in direct sunlight, as it may affect measurement readings.
- Protect the CubiScan 125 from static electricity, especially the touchscreen.
- Place the CubiScan 125 on a flat, sturdy surface as free from vibration as possible. Excess vibration can reduce the accuracy of the CubiScan 125 scale.
- The CubiScan 125's platform is free-floating—it is resting on four springs (load cells). Maintain a minimum of one-inch clearance at the back and sides of the CubiScan 125. Do not rest objects against or set objects on the CubiScan 125 when not in use.
- If a computer is used, place it as close to the CubiScan 125 as possible. The operator needs to use the keyboard or mouse on the computer while cubing and weighing packages using the CubiScan 125.
- Orient the CubiScan 125 so the touchscreen faces the operator.

Assembling the CubiScan 125

The CubiScan 125 is almost completely assembled when shipped. You only need to attach the top sensor support, route the height sensor cable, remove the shipping material, and place the glass platform.

- Place the base assembly of the CubiScan 125 on a stable surface. Make sure that the CubiScan 125 is level. Adjust the leveling feet located in each corner if necessary. (An optional cart, custom-designed for the CubiScan 125, is available from Quantronix.)
- Do not remove the foam shipping supports between the scale base and platform or the wire tie that hold the measuring gate in place; they will help prevent damage to the load cells and gate while you are assembling the CubiScan 125.

Attaching the Top Sensor Support

1. Remove the four raised screws from the top of the CubiScan 125 base assembly, and retain them to attach the top sensor support.

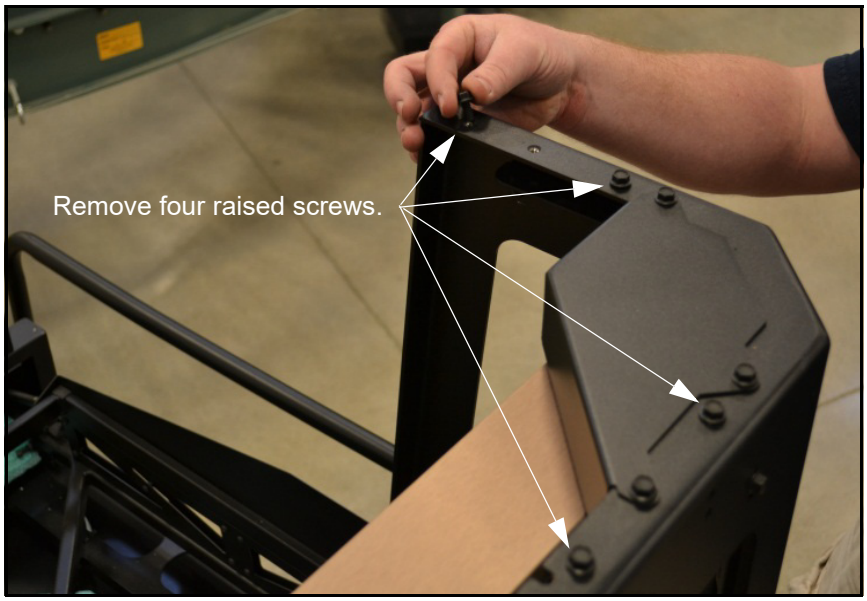


Figure 3
Raised Screws at Top of Assembled CubiScan 125

2. Set the top sensor support in position on top of the CubiScan 125 gate support, and line up the screw holes.

3. Insert the screws you removed in step 1 through the holes and tighten them.

Figure 4
Top Sensor Support Attached

Attaching the Height Sensor Cable

The height sensor cable (gray cable with an RJ-12 connector) is connected to the controller on the front of the base assembly and is routed and tied through the base and gate support. It is coiled at the top of the gate support for routing up the top sensor support.

Figure 5
Location of Height Sensor Cable

1. Route the height sensor cable from the top of the gate support up the side of the top sensor support as shown below.

Figure 6
Routing the Height Sensor Cable

2. Place the supplied cable ties over the sensor cable and through the holes on either side and secure them to hold the sensor cable in place.

3. Place the sensor cable cover over the wire as shown below, aligning the screws on the side of the sensor cover with the slots in the top support. Slide the sensor cover into place, and tighten the screws.

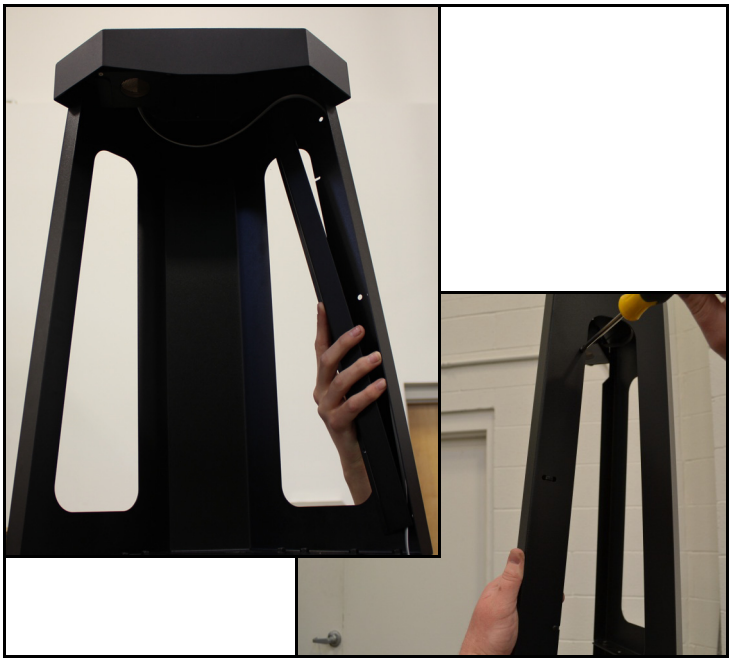


Figure 7
Attaching the Sensor Cable Cover

4. Connect the RJ-12 connector on the sensor cable to the connector on the top of the height sensor as shown below.

Figure 8
Connecting the Height Sensor Cable

Removing the Shipping Material

1. Remove the four green foam shipping supports from the CubiScan 125 base.

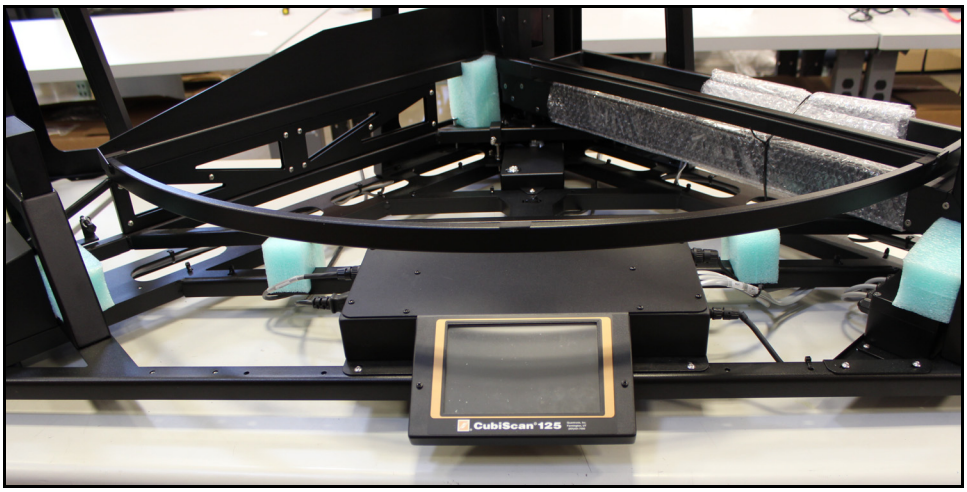


Figure 9
Foam Shipping Supports

2. Cut the cable tie holding the measuring gate in place, and remove the bubble wrap.

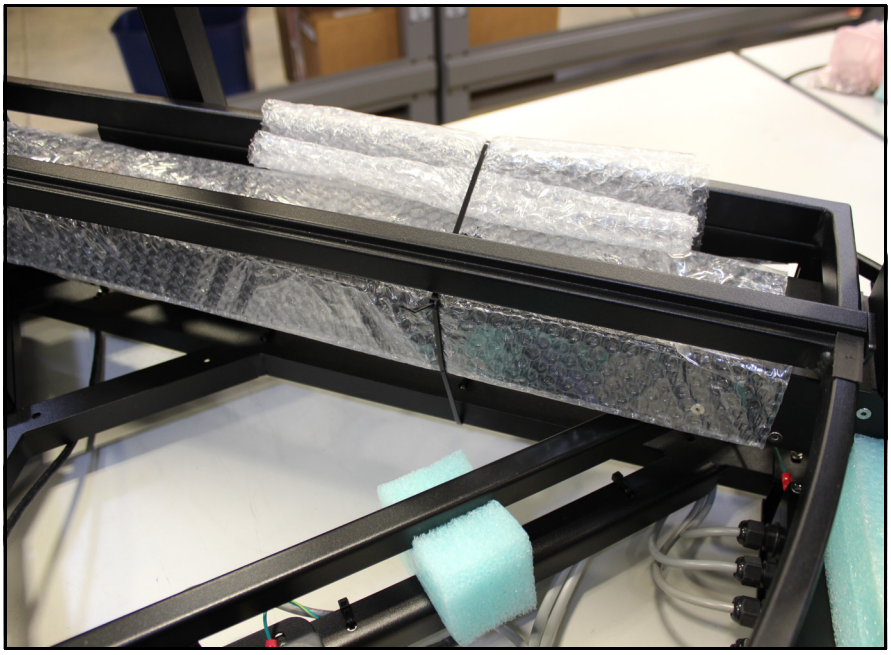


Figure 10
Cable Tie Holding Measuring Gate

Placing the Glass Platform

1. Remove the glass cubing and weighing platform from the cardboard box that was in the shipping crate, and carefully place it on the platform frame, as shown below.

Figure 11
Glass Cubing and Weighing Platform

2. Store the extra glass platform in a safe location to use as a replacement if needed.

Connecting Power

1. Locate the AC power cord (supplied), and connect it to the power connection on the left side of the controller box, as shown below.

Figure 12
Connecting Power

2. Route the AC power cord under the CubiScan 125 base so it cannot be crushed, bent, or pulled loose.

3. Connect the other end of the AC power cord to a standard power outlet.

4. Use the power switch on the left side of the controller box (shown above) to turn the CubiScan 125 on and off.

NOTE ☞ *The CubiScan 125 should be powered on before running the Qbit application to cube and weigh packages.*

Turning On the CubiScan 125

Specific procedures must be followed each time you turn on the CubiScan 125, as follows:

1. Make sure there are no packages or other objects on the CubiScan 125 platform.

2. Make sure the gate is in the home position (right-hand side).

3. Turn on the CubiScan 125 with the power switch located on the left side of the controller box.

4. Zero the CubiScan 125. For instructions, See "Zeroing the CubiScan 25" on page 27.

The CubiScan 125 performs self-calibration and diagnostic procedures that take about 5 seconds. Do not touch the CubiScan 125 platform during these 5 seconds.

Connecting to a Computer or Network (Optional)

To connect the CubiScan 125 to a computer, do the following.

1. Place the computer close to the CubiScan 125. (Refer to "Placement" on page 6 for information.)

2. Locate the controller box. The controller is located just behind the touchscreen at the front of the base.

3. Choose from one of the following operating methods.

- Connect the CubiScan 125 to a host system via a standard 10/100Base-T Ethernet TCP/IP port. This is the recommended method and all parts needed to connect the CubiScan 125 to a computer via an Ethernet connection have been supplied by Quantronix. You may need to load the driver. To load the driver onto the computer follow the instructions on page 16. You can use Qbit software or the touchscreen options to configure the CubiScan 125 for TCP/IP communication. Contact Quantronix for information on available software. Or, refer to the Communications Protocol.
- Connect the CubiScan 125 to a PC using a USB cable (not provided) through the USB port on the controller box. You will need to load the USB driver to use this port. Follow the instructions on page 20 to load the driver.
- Connect the CubiScan 125 to a PC through the RS-232-C serial port on the controller box. Use the Qbit software on the computer to run the CubiScan 125.

- Operate the CubiScan 125 without a computer using the touchscreen. Refer to "Measuring/ Weighing Items" on page 25 for information.

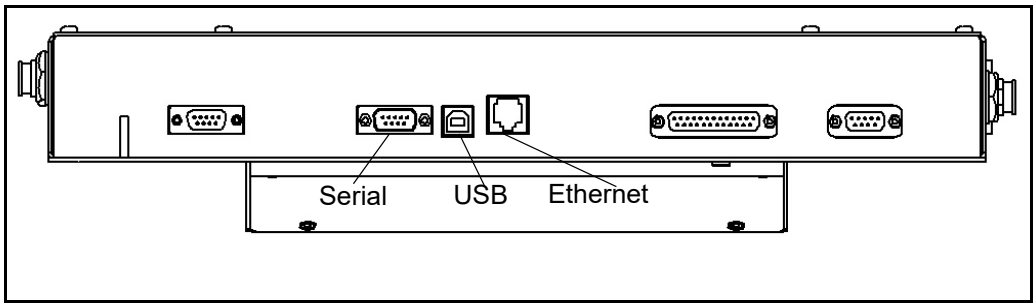


Figure 13
Ethernet, Serial, and USB Connectors

Connecting to a Computer via Ethernet

This section describes how to use Ethernet to connect a computer to the CubiScan 125 (recommended method).

Use Quantronix's Qbit software (refer to the *Qbit User Guide*) or the touchscreen options (see Chapter 4 "Configuration") to configure the CubiScan 125 for TCP/IP communication. Contact Quantronix if you need additional assistance.

If you are using the Ethernet connection option:

1. Install the driver that is needed, for further information on installing the driver, see below.
2. Connect the Ethernet cable (supplied) to the CubiScan 125's Ethernet port, as shown in Figure 13.
3. Attach the Ethernet cable to the TRENDnet USB to Ethernet cable adapter (supplied).
4. Connect the TRENDnet cable adapter to the PC.

NOTE ☞ *The following screen images were taken from a Windows 7 operating system. Your screen images may appear different if you are using a different operating system.*

Installing and Configuring the Ethernet Driver

To install the Ethernet driver there are two options.

1. You can install the driver using the TRENDnet CD-ROM and User's Guide.

Or you can complete the following steps:

1. Plug the white TRENDnet USB to Ethernet adapter into the computer. The following bubble will appear in the bottom right corner of the screen.

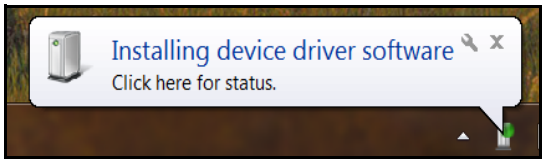


Figure 14
Installation Bubble

- Wait a few moments for the installation process to finish and the following bubble will pop up.

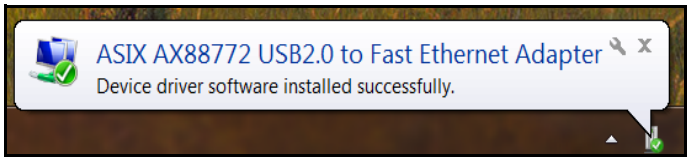


Figure 15
Device Installed Bubble

- If you clicked on the installation bubble, the following window will open.

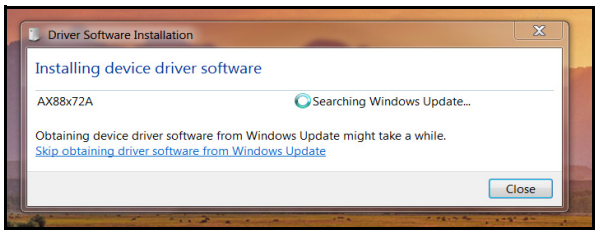


Figure 16
Installation Process Bubble

- Once the driver has finished the installation process it will report that the adapter is ready to use.

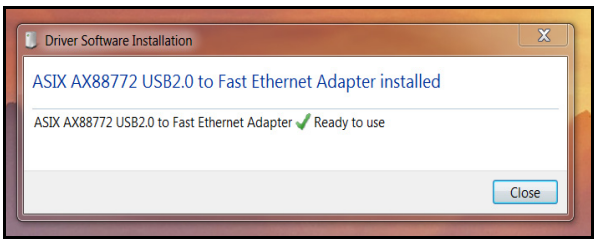


Figure 17
Adapter is Ready to Use

Access Ethernet Network Settings

Once the driver is installed you need to set the static IP address and the Subnet mask of the adapter. You can access these network settings by completing the following steps:

1. Under Control Panel > Network and Internet > Network and Sharing Center locate and click on the correct connection to bring up the status window.

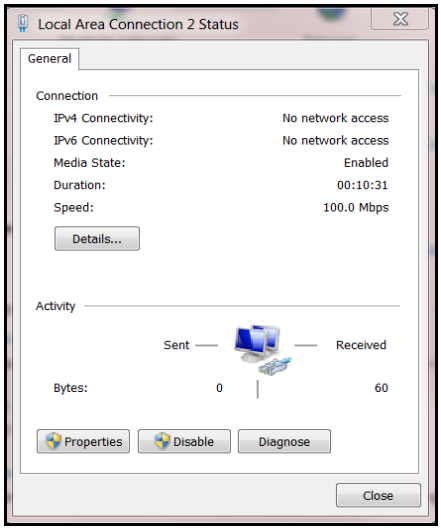


Figure 18
Status Window

2. Select **[Properties]**. Double-click **Internet Protocol Version 4** to bring up the general properties window.

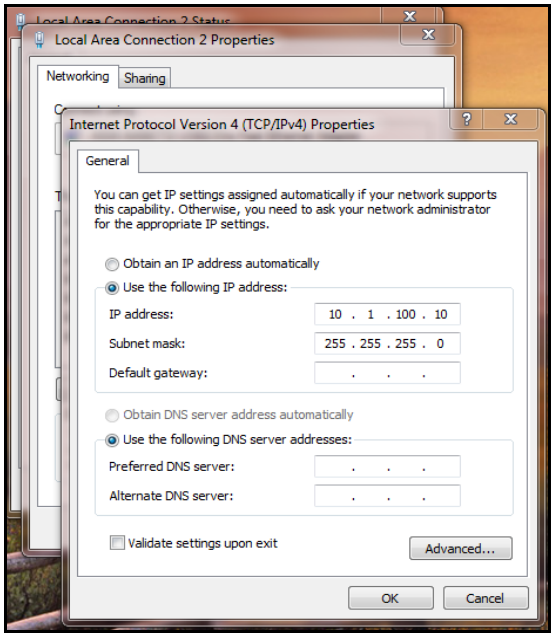


Figure 19
General Properties Window

From this screen you can set the IP address and Subnet mask. The recommended IP address setting is 10.1.100.10. The recommended Subnet mask setting is 255.255.255.0.

3. Click **[OK]** to exit when you are finished. Close any other remaining windows.

Once you have completed this setup process, the computer should communicate with the CubiScan 125.

Connecting to a Computer via USB

This section describes how to use a USB connection to connect a computer to the CubiScan 125.

If you are using the USB cable (not supplied) connection:

1. Connect the USB cable to the CubiScan 125's USB port located on the controller box, as shown in Figure 13.

2. Make sure that the proper driver has been installed on the PC (see below).

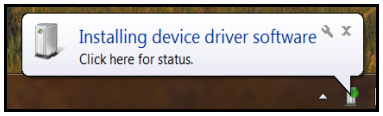
3. Connect the USB cable to the PC.

Installing and Configuring the USB Driver

You must install a driver on your computer before it can recognize and communicate with the CubiScan 125 via the USB port. Complete the following steps to install the driver.

1. With the CubiScan 125 turned on, connect the USB cable to your computer's USB port and to the USB port on the CubiScan 125.

   In the bottom right corner of the monitor, a bubble appears indicating that new hardware has been found.

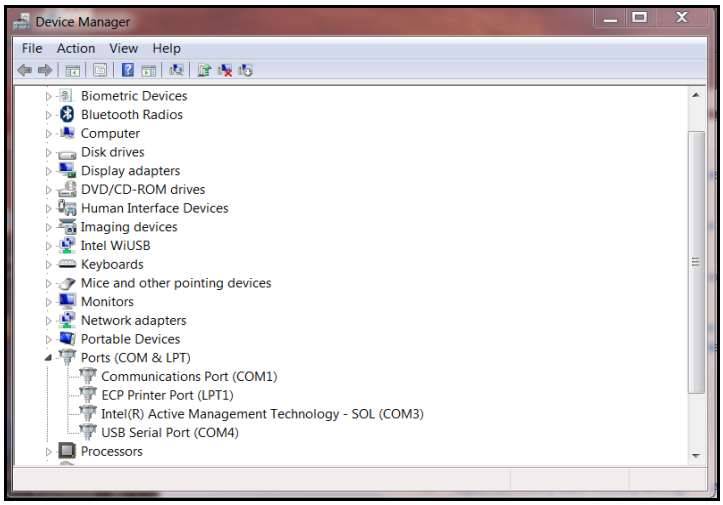


   The driver will be automatically installed. A notification bubble will pop up in the bottom right corner of the screen when the installation process is finished.

   If you are using Windows XP, the driver will need to be loaded manually.

2. To determine which COM port the computer has assigned to the USB port, go to Control Panel > Hardware and Sound.

3. Click on **Device Manager** to display the Device Manager window.



4. Click the arrow next to **Ports** to display the available ports. Locate the COM port assigned to the CubiScan 125. It will read **USB Serial Port**. This is the COM port you will use when setting up Qbit applications to communicate with the CubiScan 125. In this example, the CubiScan 125 was assigned to COM4.

5. Close the Device Manager and the System Properties window.

When it is turned on, the CubiScan 125 will recognize the cable connection and, if configured correctly, will respond to a connection request from the host.

Connecting to a Computer via Serial (RS-232-C)

If you are using the RS-232 serial communications cable connection, complete the following steps:

1. Route the RS-232 serial communications cable so it cannot be crushed, bent, or pulled loose. Make sure that the cable does not interfere with the scale.

2. Connect the serial cable to the CubiScan 125's serial port, as shown in Figure 13.

3. Locate a free RS-232-C serial port on your computer. Refer to your computer's documentation, if necessary, to identify the ports. If the serial port is 9-pin, connect the serial cable directly to the serial port. If it is 25-pin, use a 25-pin to 9-pin adapter (not supplied).

4. To secure the RS-232 serial cable, tighten both screws at each end of the cable. It is important that the cable be secure.

Installing Qbit (Optional)

A flash drive is available containing the Qbit software program, which can be used to operate the CubiScan 125.

The *Qbit User Guide*, located on the drive, provides instructions for installing and using Qbit. You can also download the user guide from the Quantronix website at www.cubiscan.com.

Setup Checklist

Before using the CubiScan 125 for the first time, verify the following:

1. Have the CubiScan 125 and the computer (if applicable) been placed in the proper operating environment? (page 6)

2. Has the CubiScan 125 been fully assembled? (page 7)

3. Has the height sensor cable been connected to the sensor? (page 9)

4. Has all shipping material been removed? (page 12)

5. Is the CubiScan 125's scale platform free moving? The CubiScan 125 should not be pushed up against a wall and no object, cable, etc., should be resting on it or against it.

6. Has the Ethernet, RS-232, or USB cable been attached to the CubiScan 125 and the computer (if applicable)? (page 15)

7. Has the AC power cord been connected correctly? (page 14)

8. If you are using Qbit to operate the CubiScan 125, has the software been copied onto your computer's hard-disk drive? (Refer to the *Qbit User Guide* for information.)

9. Does the CubiScan 125 require recalibration? The CubiScan 125 was calibrated at the factory, but *may* require recalibration due to handling during shipping. Refer to page 40 for information on calibrating the CubiScan 125. If you are using Qbit software, check the status of the CubiScan 125 before operating it. Refer to the *Qbit User Guide* for information on checking the CubiScan 125's status.

Chapter 3
Operation

This chapter provides instructions for operating the CubiScan 125.

NOTE ☞ *The CubiScan 125's glass platform should be kept clean and free of objects that are not being measured.*

Before You Begin

Follow the procedures below to turn on the CubiScan 125. The CubiScan 125 should be turned on before you start Qbit (if applicable).

1. Make sure there are no objects on the CubiScan 125's platform.
2. Make sure that the gate has enough room to move freely.
3. Turn on the CubiScan 125. The CubiScan 125 performs self-diagnostic procedures that take about 5 seconds. **Do not touch the CubiScan 125 platform during these 5 seconds**.
4. The CubiScan 125 must be zeroed each time it is turned on. For instructions on zeroing the CubiScan 125 see "Zeroing the CubiScan 125" on page 31.

NOTE ☞ *Do not lean on or touch the CubiScan 125 glass platform or the object while the object is being measured and weighed. Any kind of contact with the platform during the measurement process can alter the weight or sensor reading.*

CAUTION

While the CubiScan 125 has overload protection, objects heavier than 50 pounds (25 kg) should not be placed on the platform. Overloading the scale or shock loading (dropping a heavy object on the scale) can cause permanent zero shift, making the scale inoperable.

CubiScan 125 Touchscreen

You can use the CubiScan 125 touchscreen (below) to configure and control the CubiScan 125 as well as display measurement results.

Figure 20
CubiScan 125 Touchscreen

All measurement, setup, and diagnostic information is shown on the touchscreen. You tap touch keys on the display to change the configuration and perform diagnostics.

- Tap a key to select a function.
- Tap **[Zero]** to "zero" the CubiScan 125 (see "Zeroing the CubiScan 125 on page 31).
- Tap **[Menu]** to select configuration or calibration functions.

Other touch keys may be used for specific functions and are described in the instructions for that function. Refer to Chapter 4 "Configuration" on page 28 for information on configuration and to "Diagnostics" on page 60 for information on diagnostics.

Touchscreen Care

Never use a sharp or hard-tipped object to tap on the touchscreen. It is glass 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.

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.

Cubing and Weighing

The CubiScan 125's ultrasound sensors can measure cuboidal objects as small as 2.0 inches, as well as irregularly-shaped, opaque objects as small as 0.1 inch using the measuring gate (refer to "Specifications" on page 2 for specifications and size limitations).

Cuboidal objects are measured by the ultrasound sensors on the CubiScan 125 frame. Irregular objects are measured by the infrared sensors in the CubiScan 125 measuring gate by moving the gate over the object on the platform.

Refer to the appropriate following section for instructions.

Cubing and Weighing Using Qbit

Refer to the *Qbit User Guide* for instructions on measuring, weighing, and other functions in Qbit. The *Qbit User Guide* is provided on the flash drive or you can download it from the Quantronix website at www.cubiscan.com.

Cubing and Weighing Using the Touchscreen

All controls and displays for the CubiScan 125 are shown on the touchscreen at the front of the base. If a computer is not connected, you can use the touchscreen to measure and weigh objects.

Measurement and weight results will only be displayed when the CubiScan 125 touchscreen is displaying the home screen.

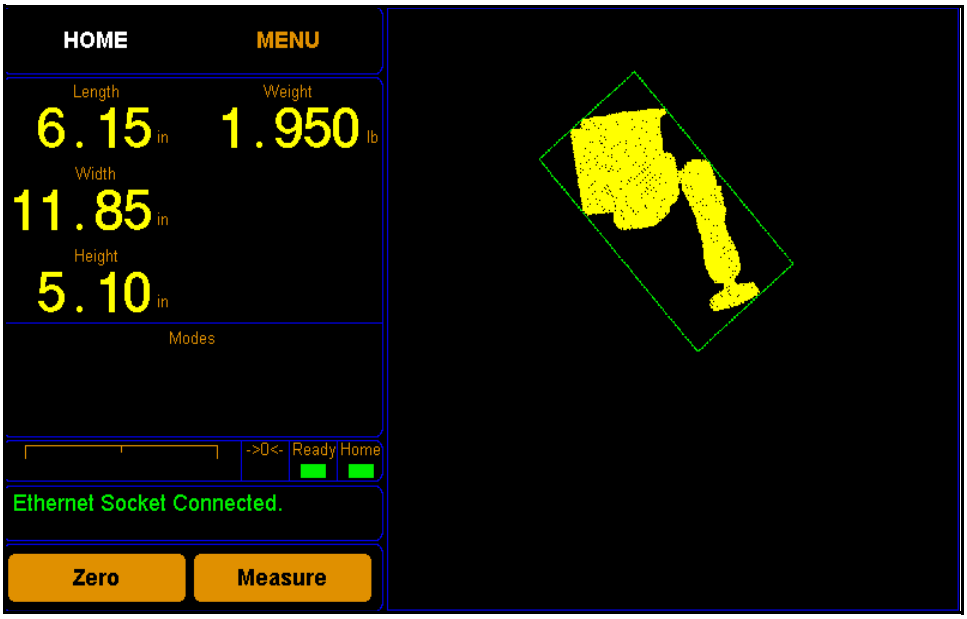


Figure 21
Measurement Display

Length
Width
Height
These display the measured dimensions in inches (in), centimeters (cm), or millimeters (mm) as selected.

Weight
This displays the measured weight in pounds (lb) or kilograms (kg) as selected.

->0<- (indicator)
This indicates that the scale is zeroed and ready to receive an object. This indicator must be lit before you can place an object on the platform. When you place an object on the platform, the indicator goes off.

Ready (indicator)
This indicates that the CubiScan 125 is ready for cubing and weighing.

Home (indicator)
This indicates that the measuring gate is positioned in the "home" position (on the right-hand side).

Zero (button)
Tap this key to reset the scale to "zero" (make sure the platform is empty). Refer to "Zeroing the CubiScan 125" on page 31.

Menu
Tap this key to go to the configuration menu to set up or calibrate the CubiScan 125.

Home
Tap this key to return to the home screen.

Measure
Tap this key to take a measurement using the ultrasound sensors.

Measuring/ Weighing Items Using the Ultrasound Sensors

Take the following steps to measure and weigh an item using the ultrasound sensors.

1. Verify that the CubiScan 125 platform is empty and that the gate is in the home position so that it doesn't interfere with the sensors. The zero indicator should be lit.

2. Place the package or object to be cubed and weighed on the platform and slide it against the back corner until it is in contact with both side panels. The zero indicator light will go out.

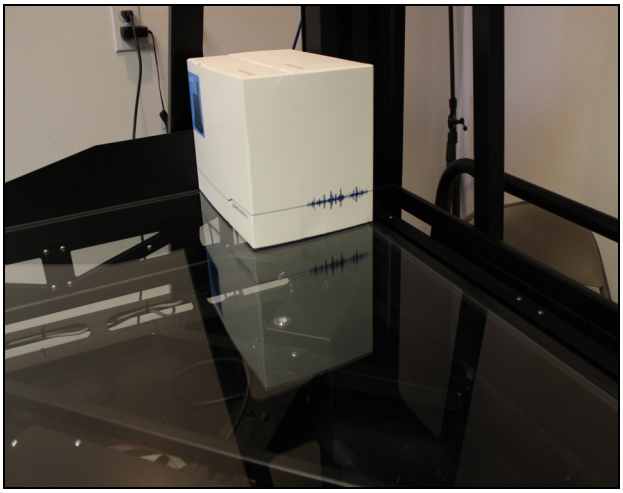


Figure 22
Package on Platform

NOTE ☞ *Do not lean on or touch the CubiScan 125 platform or the object while an object is being measured. Any kind of contact with the platform during the measurement process can alter the weight or sensor reading.*

3. Tap **[Measure]**. The length, width, height, and weight of the package are displayed.

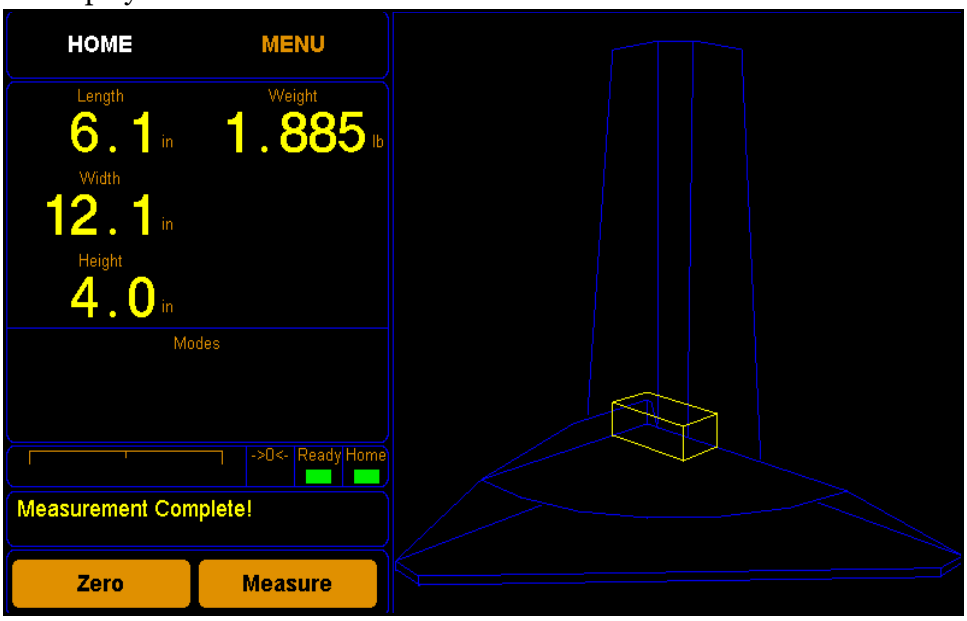


Figure 23
Ultrasound Measurement Display

A two-dimensional image of the object is displayed. The length, width, height, and weight are displayed on the touchscreen.

4. Remove the package from the platform. Wait for the **zero** indicator to light before placing the next object on the platform.

   If the **zero** indicator does not light, it means that the CubiScan 125 needs to be zeroed. To zero the scale, make sure that the platform is free of all objects, then tap **[Zero]**.

Measuring/ Weighing Items Using the Gate

Take the following steps to measure and weigh an item using the touchscreen. The measuring gate can measure opaque objects as small as .1 inch (2 mm). An image of the object is displayed on the touchscreen as it is measured. When you begin measuring with the measuring gate, you must start with the gate on the right side of the CubiScan 125, or home position (indicated by the **home** indicator on the touchscreen).

You can then use either of the following two methods to measure an object.

- Place the item anywhere on the glass platform. Starting with the measuring gate on the right or left side, move the gate over the object, and then move it back to the position you started in to complete the measurement.
- Place the item anywhere on the glass platform. Start with the gate on the right or left side and then move it to the opposite side you started in to complete the measurement.

1. Verify that the CubiScan 125 scale is at zero. The **zero** indicator should be lit.

2. Place the object on the glass platform. The **zero** indicator light will go out.

NOTE ☞ *Do not lean on or touch the CubiScan 125 platform or the object while an object is being measured. Any kind of contact with the platform during the measurement process can alter the weight or sensor reading.*

3. Using one of the gate movement methods described above, move the measurement gate slowly using the handle. If the measurement was successful the length, width, height, and weight of the object are displayed.

NOTE ☞ *Do not move the gate too quickly across the platform. A gate speed error is displayed on the touchscreen if you move it too quickly.*

4. Remove the object from the platform. Wait for the **zero** indicator to light before placing the next object on the platform.

5. If the **zero** indicator does not light, it means that the CubiScan 125 needs to be zeroed. To zero the scale, make sure that the platform is free of all objects, then tap **[Zero]**.

Figure 24
Measuring Gate

A two-dimensional image of the object, as well as the length, width, height, and weight of the object are displayed on the touchscreen.

Tap the image to display an image of the object's height. Tap the height image to return to the two-dimensional width and length image.

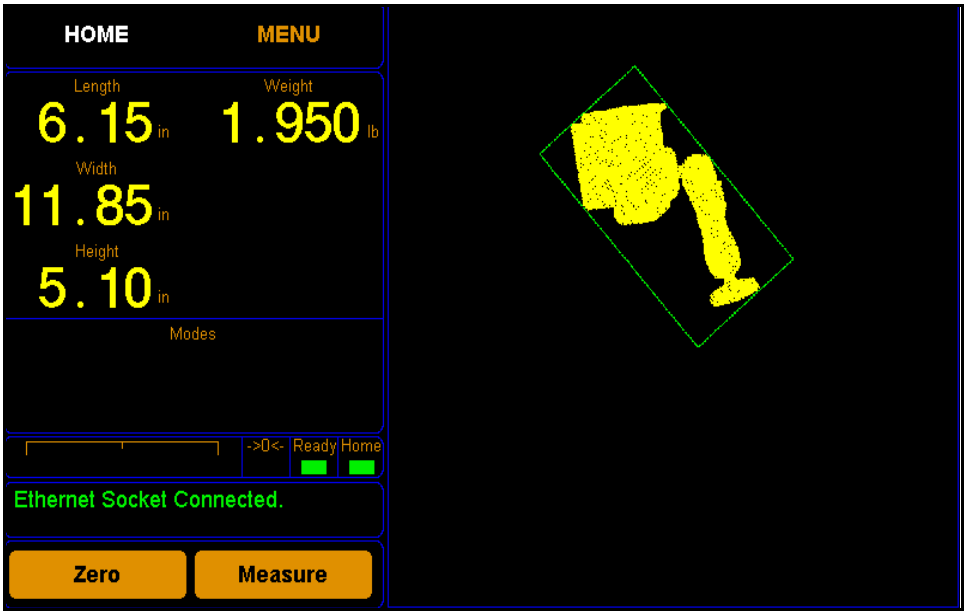


Figure 25
Measuring Gate Display

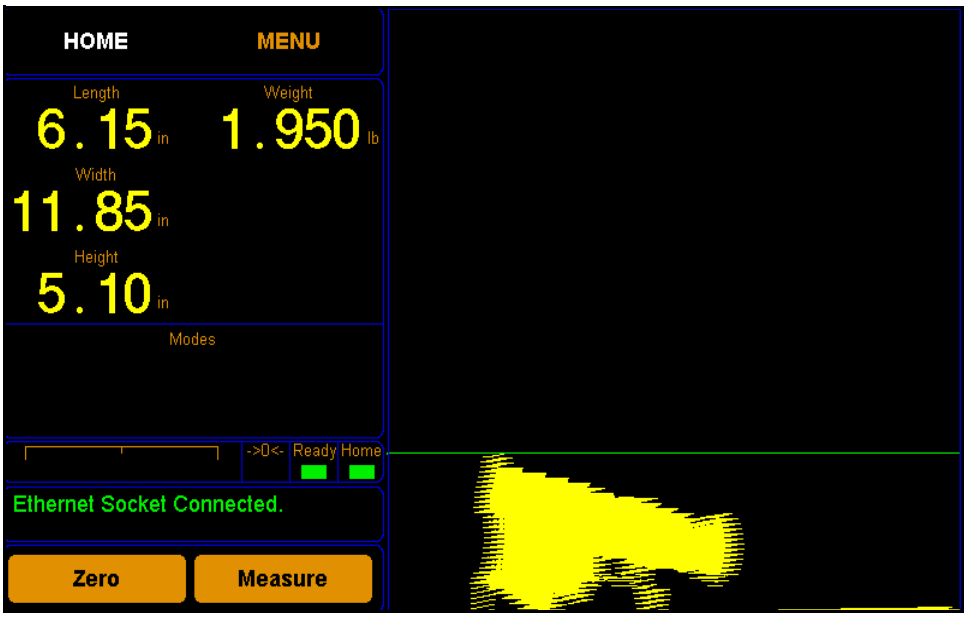


Figure 26
Height Display

Zeroing the CubiScan 125

Tap the **[Zero]** button on the touchscreen to "zero" the CubiScan 125 (set all empty measurements and weight to zero). The weight when the platform is empty must be set to zero for the CubiScan 125 to operate properly. The CubiScan 125 tries to zero itself automatically. However, you may need to use this option in the following circumstances.

- If, during a long measuring session, environmental conditions (temperature and humidity) have changed noticeably.
- If you suspect that the last zeroing was in error (something was on the platform).

NOTE ☞ *Make certain that the platform is free of all objects before using Zero. If not, the zero reading will not be accurate.*

Chapter 4
Configuration

This chapter provides instructions for using the CubiScan 125 touchscreen to set up the length, width, and height measurements, as well as special features that the CubiScan 125 offers. This chapter also provides instructions for configuring the units, dimensional weight factor, com port, and other settings. For information on calibrating the CubiScan 125 gate, touchscreen, or scale, refer to Chapter 5 “Calibration”.

If you have a computer connected to the CubiScan 125 with Qbit installed, you can use Qbit to set up the measurement and dimensional weight units, select the CubiScan 125 communications port, perform calibration, and other functions. Refer to the *Qbit User Guide* for instructions on measuring and other functions in Qbit. The *Qbit User Guide* is provided on the flash drive with the Qbit application, or you can download it from the Quantronix website at www.cubiscan.com.

System Configuration

The following options can be used to configure your CubiScan 125. The options available on the configure menu are Operation, Units, Ethernet, and Other.

Operation

This section discusses the options available on the Operation menu. Complete the following steps to access the Operation menu.

1. From the home screen, tap **MENU**.

Figure 27
Home Screen

NOTE ☞ *If you have set up a password previously in the system configuration, you need to enter the password to unlock the menu. Refer to page 36.*

2. Tap **CONFIGURE**. Select the Operation option if it is not already selected.

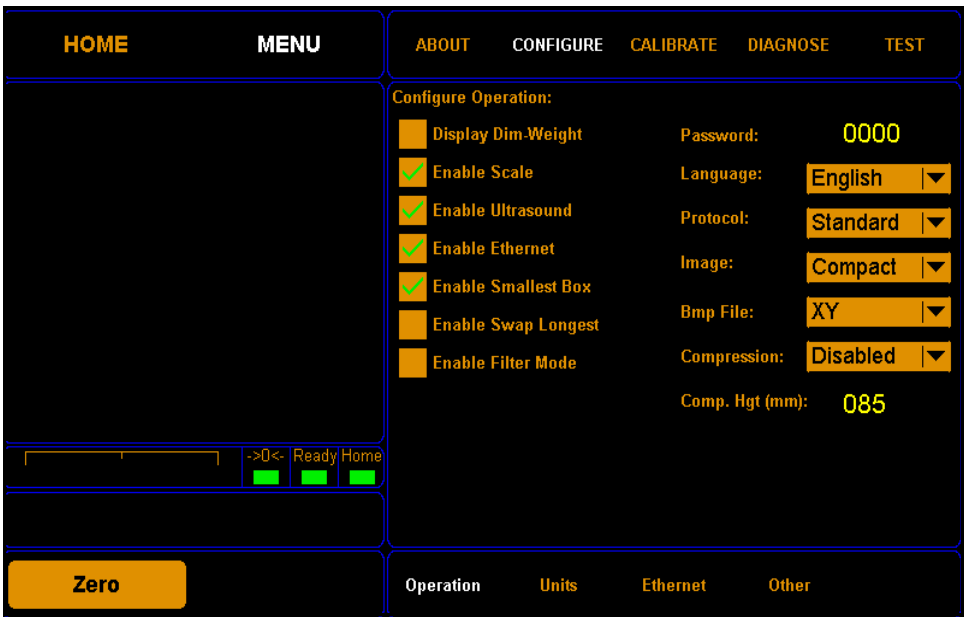


Figure 28
Configure Operation

Display Dim Weight Check this box if you want the dim weight and factor to be displayed on the home screen.

Enable Scale Check this box if you want to enable the CubiScan 125's scale. If this box is not checked, weight will not be reported on the home screen or sent in the data packet.

Enable Ultrasound Check this box if you want to enable the CubiScan 125's ultrasound sensors. If this box is not checked, measurements cannot be taken using ultrasound.

Enable Ethernet Check this box if you want to enable Ethernet communication.

Enable Smallest Box Check this box if you want to enable the smallest box mode. This mode boxes items into the smallest box possible, the placement of the item on the platform makes no difference. Turning off the smallest box mode measures items depending on their placement on the platform.

The images below illustrate the difference between having the smallest box mode on or off.

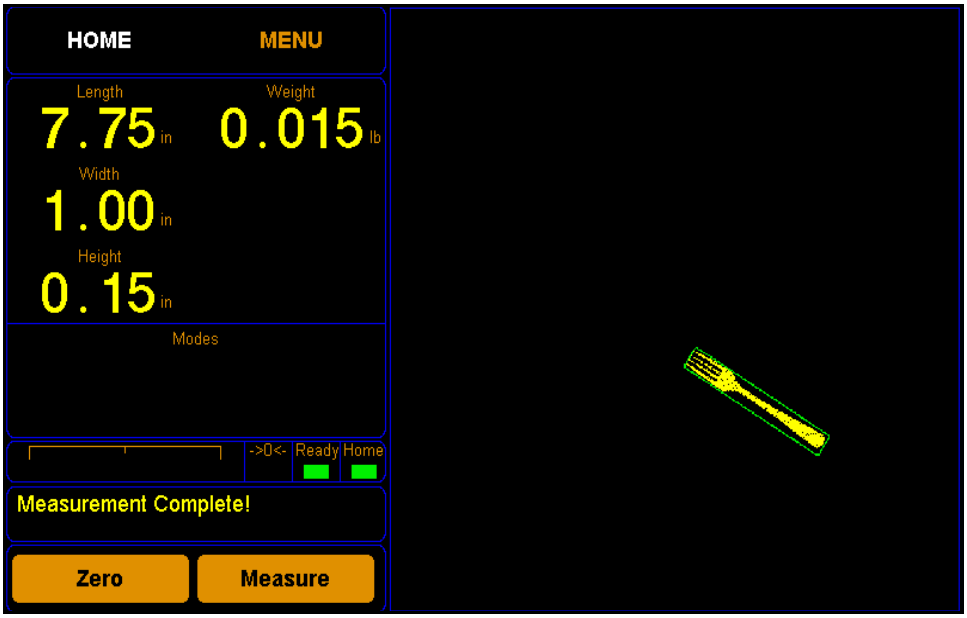


Figure 29
Smallest Box Mode On

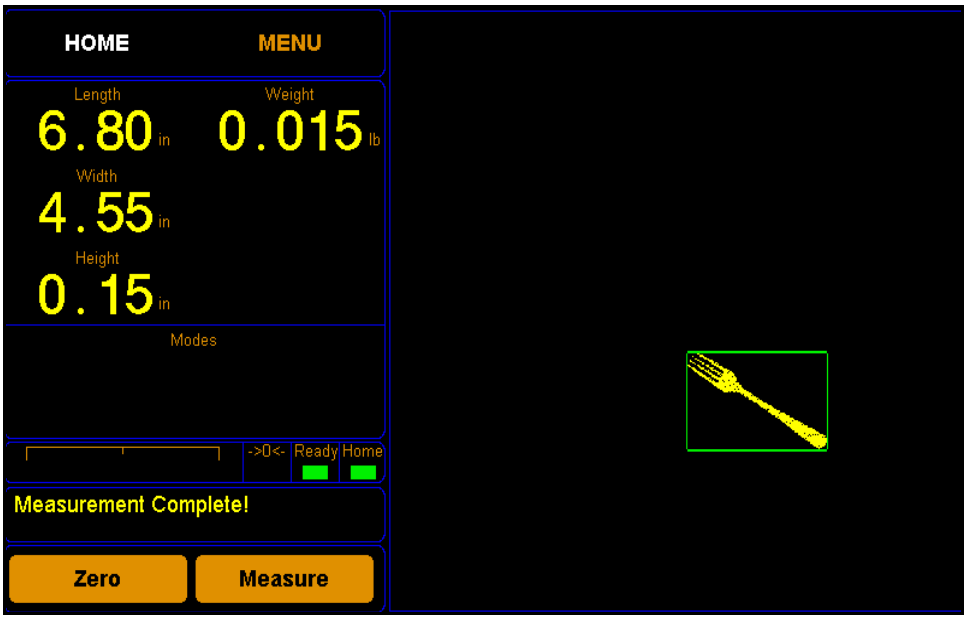


Figure 30
Smallest Box Mode Off

Enable Swap Longest Check this box if you want to enable the Swap Longest feature. This feature will automatically report the longest dimension as the length.

Enable Filter Check this box if you want the filter mode option available on the home screen. You can then enable or disable the filter mode from the home screen. In this mode the CubiScan 125 measures only the largest item that is on the platform (the item that takes up the most pixels). Height is not taken into account. As shown below, the largest item's measurements are displayed even though it is not the tallest item. Items that were excluded

from the measurement process are shown in red while the item that was measured is shown in yellow.

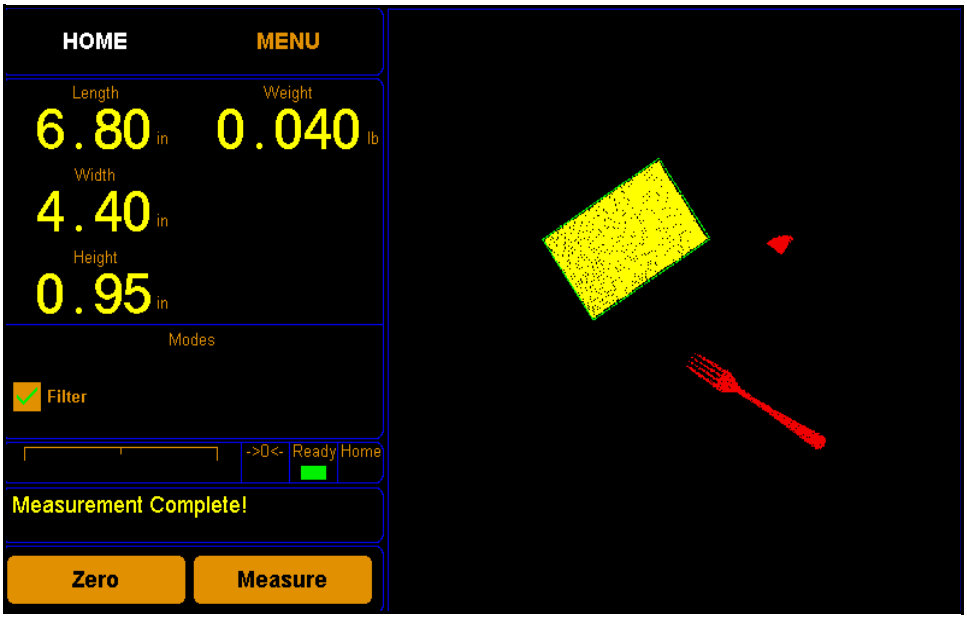


Figure 31
Filter Mode On

Password: In this field you can enter a four-digit password. If you set up a password, it must be entered each time you try to access any of the menu screens (except for the About menu).

Language: From this drop-down box you can select which language is used. The options are: English, French, and Spanish.

Protocol: From this drop-down box you can select which protocol is used. The options are: Standard, Expanded, CS 100-L, and Custom.

The Standard option is the default and works the best with Qbit software.

The Expanded option includes more information in the data packet, such as the packet number and date and time.

The CS 100-L option makes the data packet backwards compatible with the CubiScan 100-L.

The Custom option allows the use of a custom communication protocol file that has been saved on the SD card.

Image: From this drop-down box you can select your image transfer type. The options are: Full and Compact.

Bmp File: From this drop-down box you can select your Bmp file type. This controls the XY and Z image options that may be downloaded. The CubiScan 125 measures more quickly with this option disabled. The options are: Disabled, XY, and XY & Z.

Compression: From this drop-down box you can select your preferred compression mode option. This mode weighs down items such as apparel or books in order to get a more accurate measurement of the height. The options are: Disabled, Enabled, and Auto-Off.

When you select the Disabled option, the compression feature is disabled.

When you select the Enabled option, a Compression checkbox appears on the home screen. Compression mode can then be enabled or disabled from the home screen.

When you select the Auto-Off option, a Compression checkbox appears on the home screen. With this option selected, you can measure an object in compression mode once, then compression mode is automatically turned off. Compression mode can easily be turned on again with the compression checkbox on the home screen, though it will automatically turn off after each use.

Complete the following steps to measure an object in compression mode.

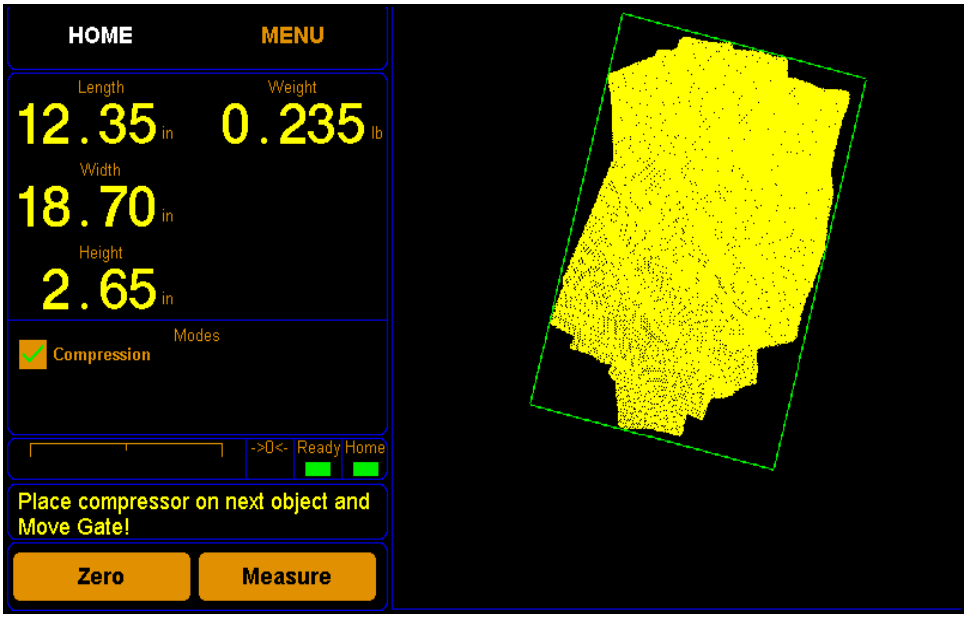


Figure 32
Compression Mode

1. After you have enabled the Compression check box, place the item on the glass platform with the compression plate on top.

2. Move the gate slowly across the object. You will then be prompted to remove the compression plate and set it aside.

3. Complete the measurement by moving the gate back across the item. The end result shows the actual weight of the item that was measured. The red line shows the compressed height of the item and the green line shows the actual height. The height figure that is reported is the compressed value.

Comp. Hgt (mm): This field displays the height of the compression plate in millimeters. The default setting for this field is 085, the height of the compression plate that Quantronix can provide. This value should not be changed unless you are using a different compression weight. To change the tare value simply tap on the number and enter the new value.

Units

This section discusses the options available on the Units menu. Complete the following steps to access the Units menu.

1. From the home screen, tap **MENU**.

Figure 33
Home Screen

NOTE ☞ *If you have set up a password previously in the system configuration, you need to enter the password to unlock the menu. Refer to page 36.*

2. Tap **CONFIGURE**. Select the Units option if it is not already selected.

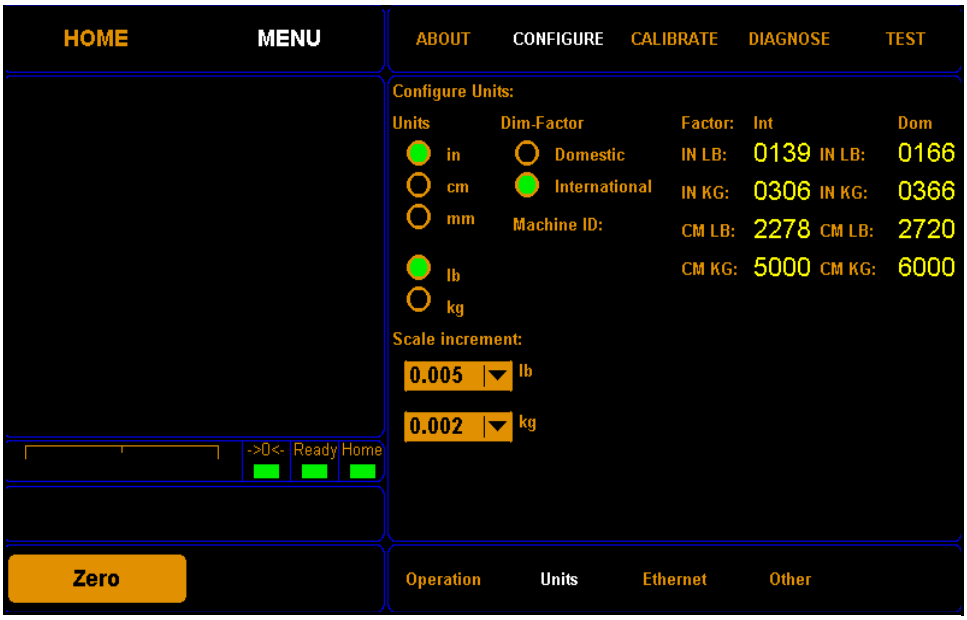


Figure 34
Configure Operation

Units In this field you can select the units that will be used. The options are inches (in), centimeters (cm), millimeters (mm), pounds (lb), or kilograms (kg).

Scale Increment In this drop-down box you can select the accuracy of the scale in pounds or kilograms. The options for pounds are 0.005, 0.01, or 0.02. The options for kilograms are 0.002, 0.005, or 0.01.

Dim-Factor In this field you can select the dim factor that will be used. The options are domestic and international.

Factors In these fields you can view or change the current dim factor values.

The following table displays the default dimensional weight factors used by the CubiScan.

139	International:	inches, pounds (in lb)
166	Domestic:	inches, pounds (in lb)
306	International:	inches, kilograms (in kg)
366	Domestic:	inches, kilograms (in kg)
2278	International:	centimeters, pounds (cm lb)
2720	Domestic:	centimeters, pounds (cm lb)
5000	International:	centimeters, kilograms (cm kg)
6000	Domestic:	centimeters, kilograms (cm kg)

Ethernet

This section discusses the options available on the Ethernet menu. Complete the following steps to access the Ethernet menu.

1. From the home screen, tap **MENU**.

Figure 35
Home Screen

NOTE ☞ *If you have set up a password previously in the system configuration, you need to enter the password to unlock the menu. Refer to page 36.*

2. Tap **CONFIGURE**. Select the Ethernet option if it is not already selected.

Figure 36
Configure Operation

In Use

This section describes the various settings and options of the Ethernet in use.

IP This is the current IP address.

SubNet This is the current subnet mask.

GateWy This is the current gateway setting.

Enable Check this box to enable the in use Ethernet.

DHCP Check this box to enable the DHCP.

Static

This section describes the various settings and options of the static Ethernet.

IP This is the static IP address.

SubNet This is the static subnet mask.

GateWy This is the static gateway setting.

Port This is the port setting.

Other

This section discusses the options available on the Other menu. Complete the following steps to access the Other menu.

1. From the home screen, tap **MENU**.

Figure 37
Home Screen

NOTE ☞ *If you have set up a password previously in the system configuration, you need to enter the password to unlock the menu. Refer to page 36.*

2. Tap **CONFIGURE**. Select the Other option if it is not already selected.

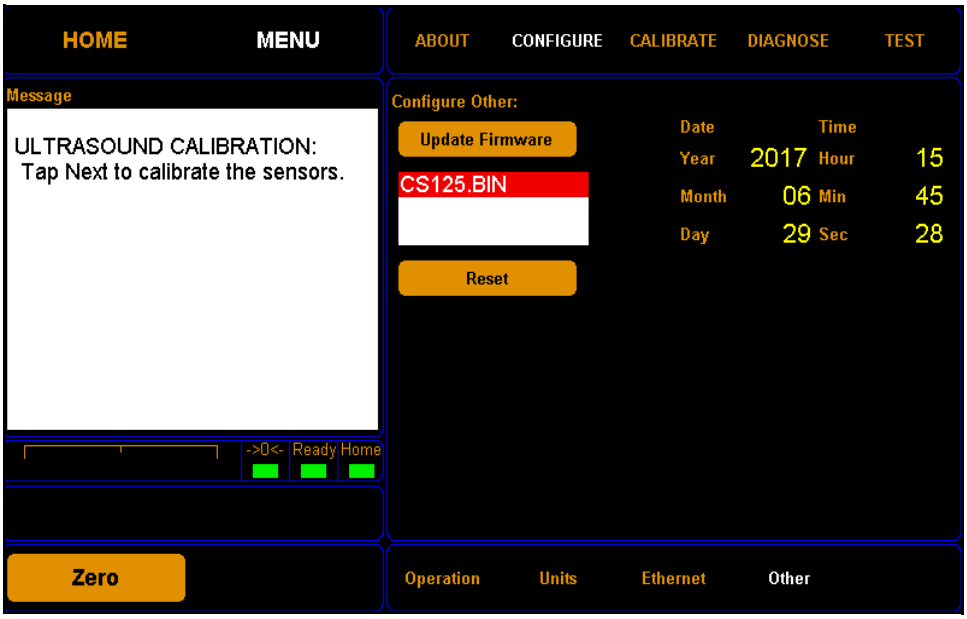


Figure 38
Configure Other

Update Firmware Tap this button to update the firmware.
The field below the button displays all firmware files that are saved on the SD card. If you would like to update the CubiScan 125 to a certain firmware file, select it in the list displayed and tap **[Update Firmware]**.

Reset Tap this button to reboot the system after updating the firmware. The system must be rebooted each time the firmware is updated.

Date/Time This displays the current date and time.

Chapter 5
Calibration

This chapter provides instructions for calibrating the CubiScan 125 touchscreen, measurement gate, scale (load cells), and ultrasound sensors. The CubiScan 125 is calibrated at the factory; however, some circumstances in which recalibration may be required include the following:

- Calibrate the touchscreen if you have trouble making selections on the screen.
- Calibrate the CubiScan 125 if you have problems cubing and weighing after assembly and setup.
- Calibrate the CubiScan 125 if it is subjected to any type of mechanical shock or collision with a heavy object.
- Calibrate the CubiScan 125 as part of a regular maintenance schedule. Calibration of the scale is recommended at least annually. If the CubiScan 125 is used heavily, scale calibration should be performed monthly.
- Perform quality checks as needed, depending on how critical the accuracy of the data is to you. Recalibrate if you are outside the tolerance of +/- 0.05 inches (+/- 0.1 cm) for the gate, +/- 0.010 pounds (+/- 0.005 kg) for the scale, or +/- 0.1 inches (+/- 0.2 cm) for the ultrasound sensors.

During quality checks or when calibrating, make sure that the CubiScan 125 is not affected by external forces that may affect readings, such as sunlight or fans.

Before You Begin

Before calibrating the CubiScan 125, remove all items or other material from the platform and blow any dust off the measurement sensors. Refer to page 49 for information on cleaning the sensors.

NOTE ☞ *The following sections provide instructions for calibration using the CubiScan 125's touchscreen. For instructions on calibrating the CubiScan 125 using Qbit, refer to the Qbit User Guide.*

Calibrating the Scale

To perform the calibration, you will need the following:

- Official test weight up to 50 pounds (25 kg) (it is recommended that you calibrate with the maximum weight)

IMPORTANT: Do not begin scale calibration until you have the test weight. Calibrating without an accurate known weight (within .01 of a lb/kg) can make all future weight readings inaccurate.

Take the following steps to calibrate the CubiScan 125 scale.

NOTE ☞ *When calibrating the scale, the CubiScan 125 must be stable with no movement of the platform such as that caused by vibration or air movement.*

1. At the home screen, tap **MENU**.

Figure 39
Home Screen

NOTE ☞ *If you have set up a password previously in the system configuration, you need to enter the password to unlock the menu. Refer to page 32.*

2. Tap **CALIBRATE**. Select the Scale option if it is not already selected. Make sure the weight and units displayed are correct for the test weight you are using. Tap **[Next]** to begin the scale calibration.

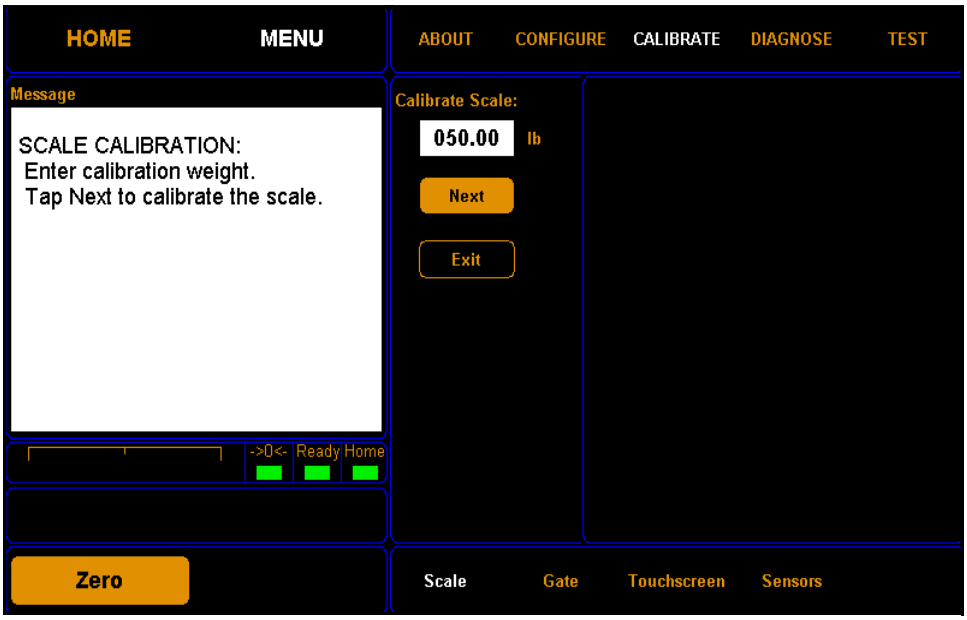


Figure 40
First Scale Calibration Screen

3. The following screen is displayed. Clear the scale of all objects, and tap **[Next]** to continue.

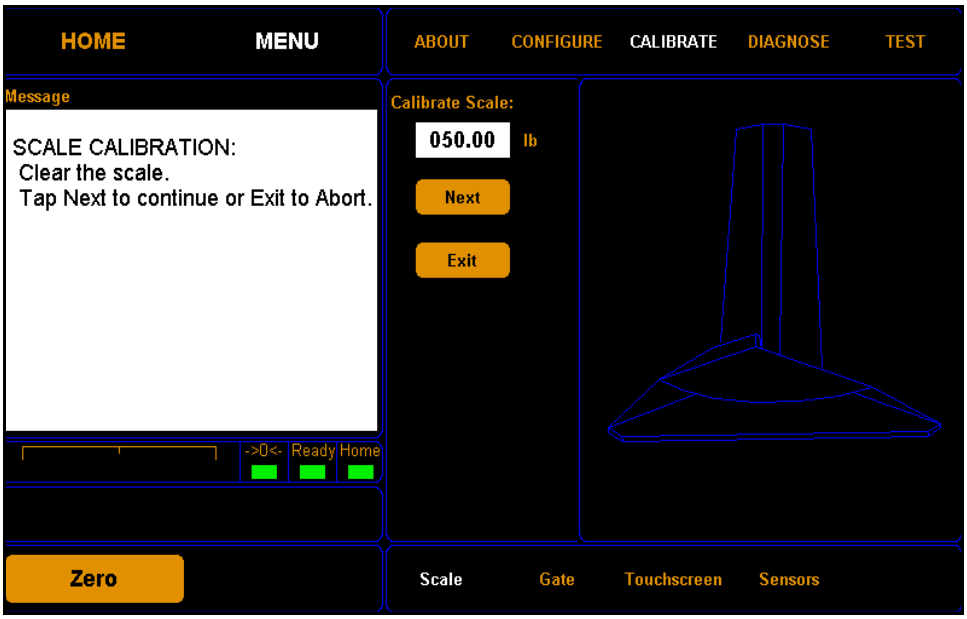


Figure 41
Second Scale Calibration Screen

4. Place the calibration weights on the CubiScan 125 platform. Tap **[Next]** to continue.

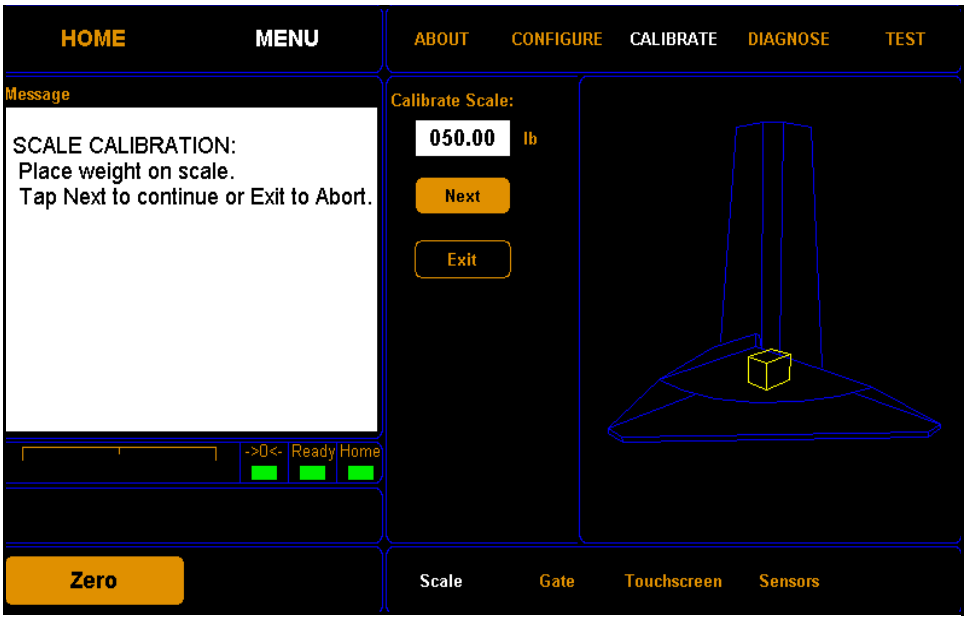


Figure 42
Second Scale Calibration Screen

5. You have now finished calibrating the scale. Tap **HOME** to return to the home screen or if you would like to try calibrating the scale again, tap **[Next]**.

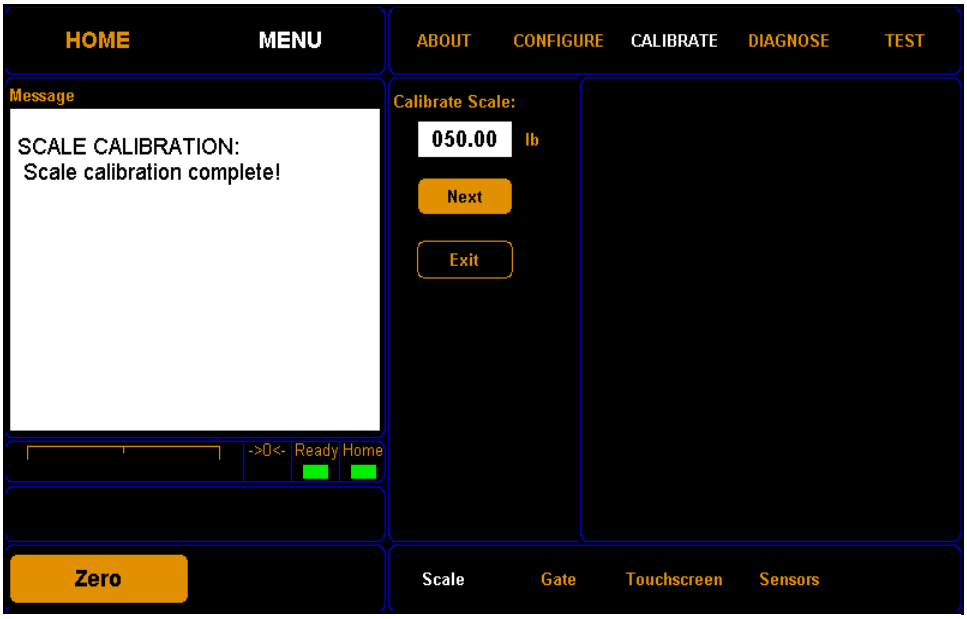


Figure 43
Scale Calibration Complete

Calibrating the Gate

To calibrate the gate using the touchscreen, proceed as follows.

1. Tap **MENU** at the home screen.

Figure 44
Home Screen

NOTE ☞ *If you have set up a password previously in the system configuration, you need to enter the password to unlock the menu. Refer to page 32.*

2. Tap **CALIBRATE**. Select the Gate option if it is not already selected.

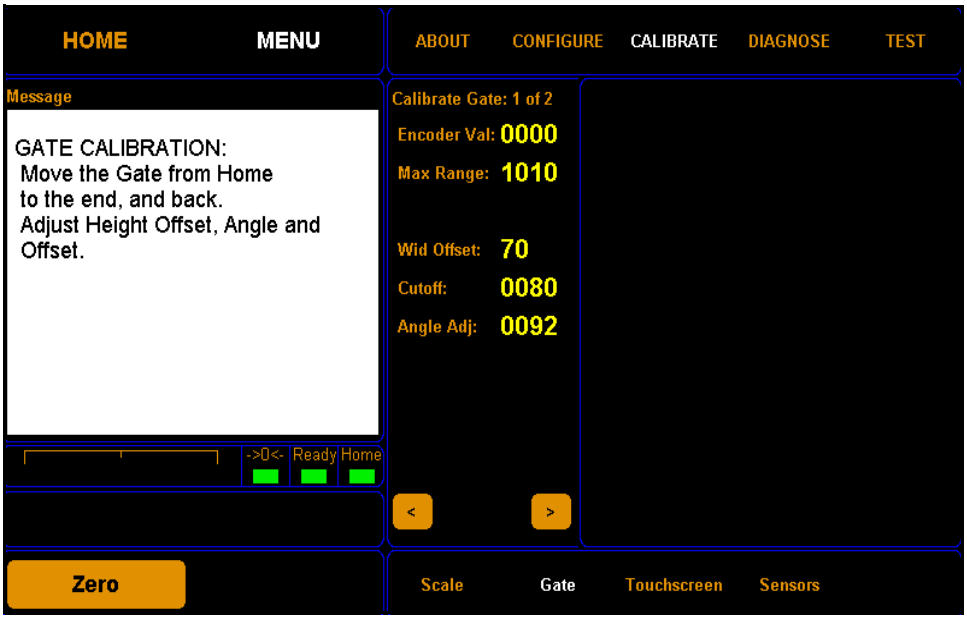


Figure 45
First Gate Calibration Screen

The encoder val field shows the movement of the gate and should read between 1005 and 1025 when the gate is the furthest from the home position. The max range value should be set a little lower than the highest encoder val.

The wid offset field displays the distance in millimeters from the gate pivot point to the first LED.

The cutoff field displays the right measurement limit.

The angle adj field displays the adjustment value required to square the touchscreen display to the actual gate movement.

3. Tap the **[>]** button to go to the next screen.

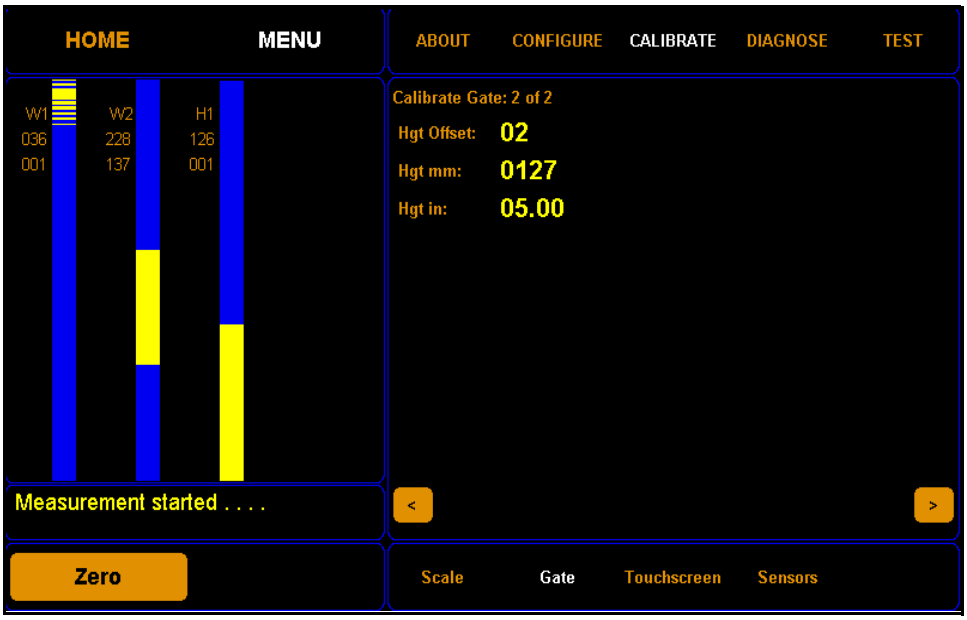


Figure 46
Second Gate Calibration Screen

From this screen you can adjust the height offset field. Adjust the height offset only if your height measurements are inaccurate.

To adjust the height offset, complete the following steps.

Step 1.0 Place the calibration cube in the gate measurement field with the five inch side upwards. The **Hgt in** field will display the current height in inches.

Step 1.1 Click on the **Hgt Offset** field to adjust the height offset. Adjust this field until the **Hgt in** field reads as close to 5.00 inches as possible. The height offset value may be slightly different for each CubiScan.

Calibrating the Touchscreen

If you are having problems selecting functions on the touchscreen, you may need to recalibrate it. You should recalibrate any time it becomes difficult to select options on the screen.

Take the following steps to calibrate the touchscreen.

1. Tap **MENU** at the home screen.

Figure 47
Home Screen

NOTE ☞ *If you have set up a password previously in the system configuration, you need to enter the password to unlock the menu. Refer to page 32.*

2. Tap **CALIBRATE**. Select the Touchscreen option if it is not already selected.

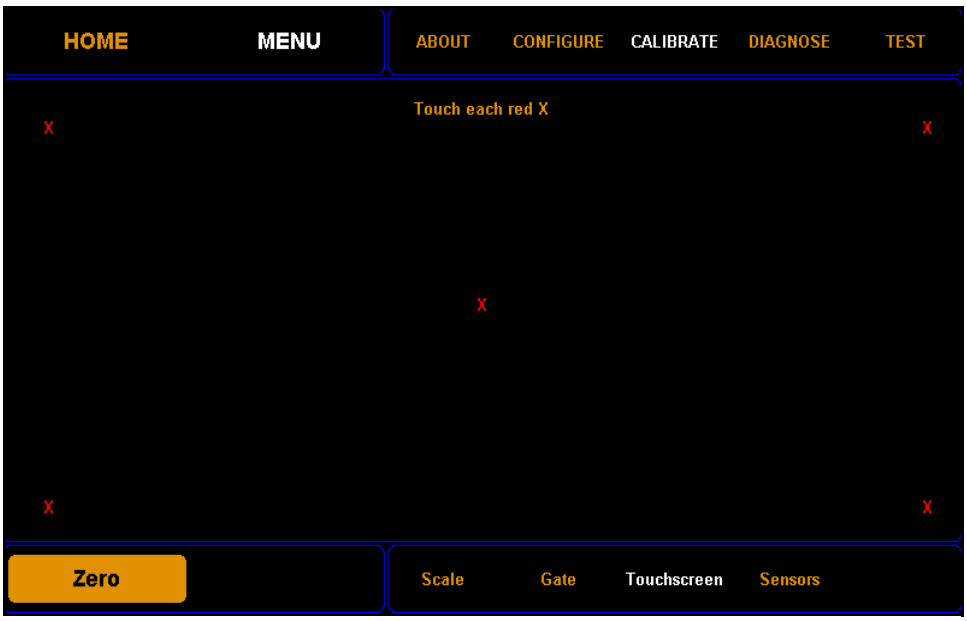


Figure 48
Touchscreen Calibration

3. Using a stylus or your finger, touch the center of each **x** on the screen until the "x" turns green. There are five calibration points on the screen.

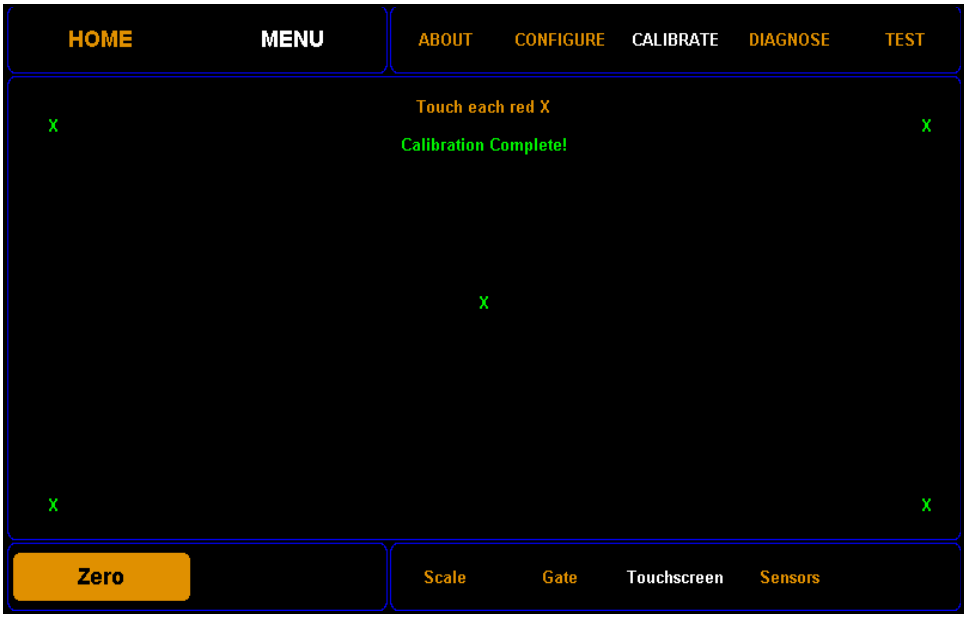


Figure 49
Touchscreen Calibration

4. When all the **x**'s are green, the calibration is complete.

Calibrating the Ultrasound Sensors

You will need the 12" x 5" x 3.6" calibration cube, supplied with the CubiScan 125, to calibrate the sensors.

To calibrate the gate using the touchscreen, proceed as follows.

1. Tap **MENU** at the home screen.

Figure 50
Home Screen

NOTE ☞ *If you have set up a password previously in the system configuration, you need to enter the password to unlock the menu. Refer to page 32.*

2. Tap **CALIBRATE**. Select the Sensors option if it is not already selected. Make sure the gate is in the home position (right-hand side). Tap **[Next]** to begin the scale calibration.

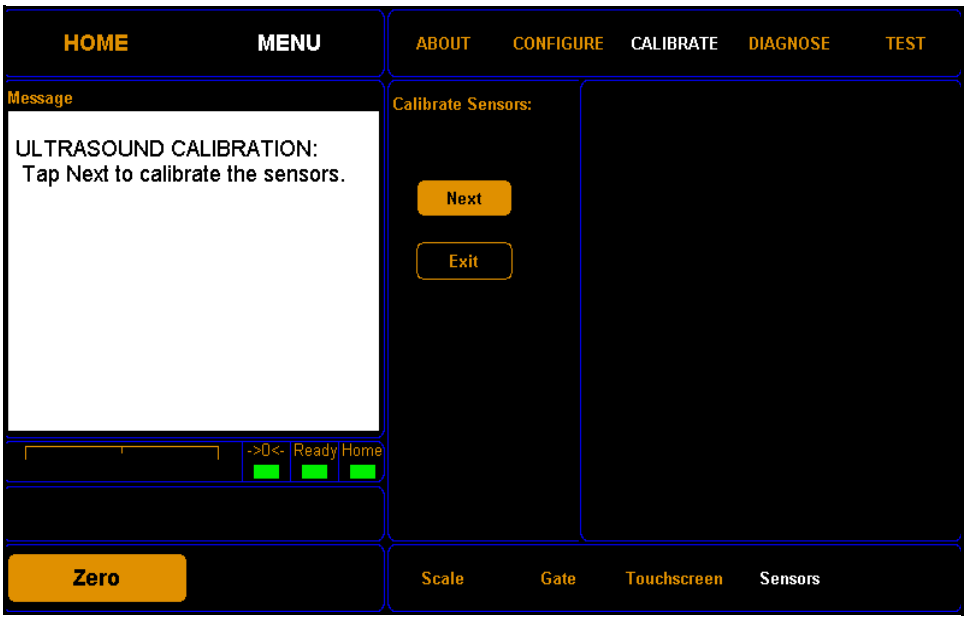


Figure 51
First Sensor Calibration Screen

3. The following screen is displayed. Clear the glass platform of all objects, and tap **[Next]** to continue.

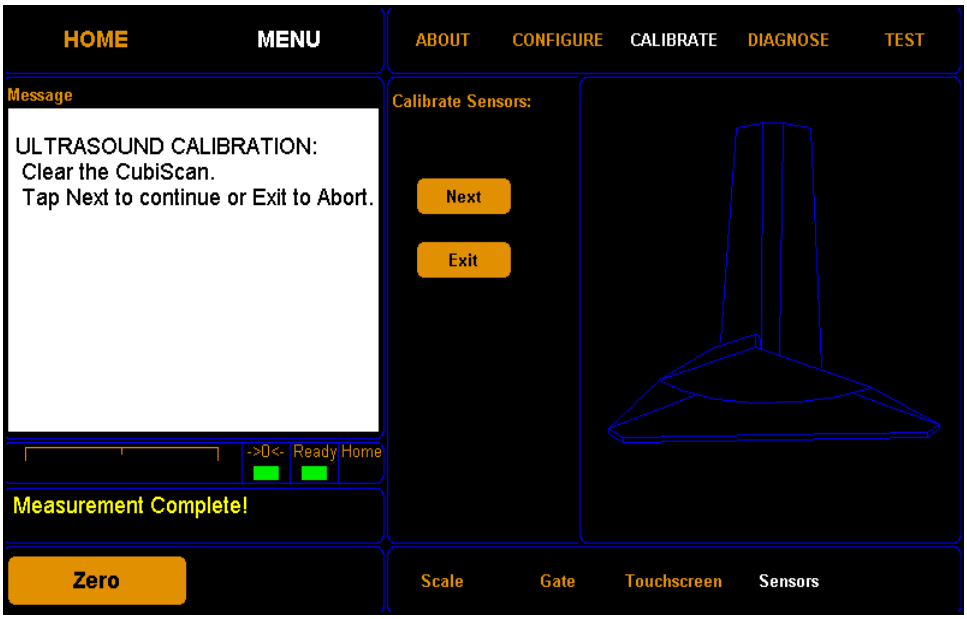


Figure 52
Second Sensor Calibration Screen

4. The following screen is displayed. Place the calibration cube on the platform and slide it against the back corner until it is in contact with both side panels with the 12" side against the left side panel (when looking from the front) as shown below. Tap **[Next]** to continue.

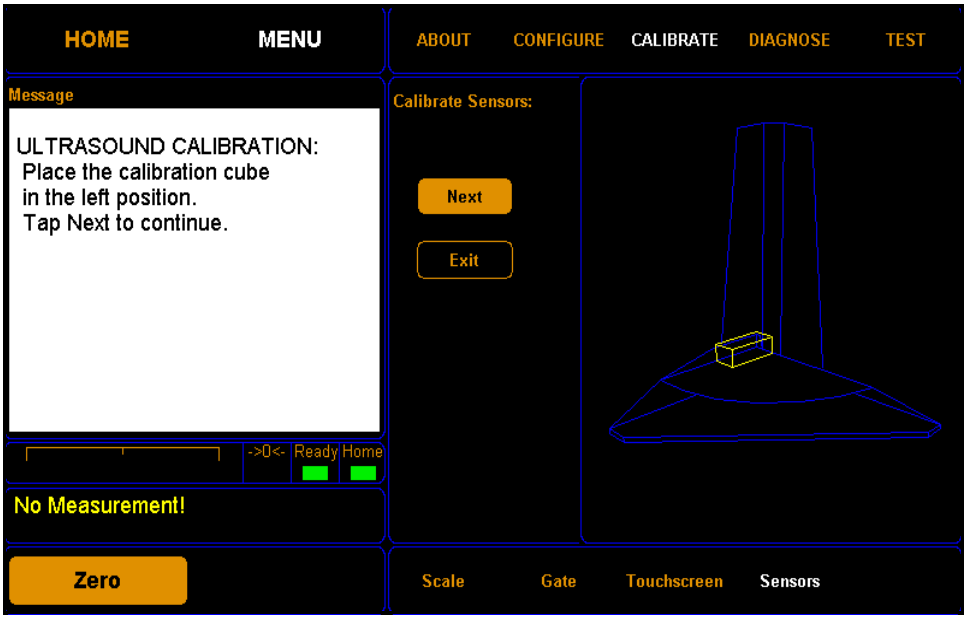


Figure 53
Third Sensor Calibration Screen

5. The following screen is displayed. Turn the calibration cube so that the 12" side is against the right side panel (make certain it is touching both side panels), as shown below. Tap **[Next]** to continue.

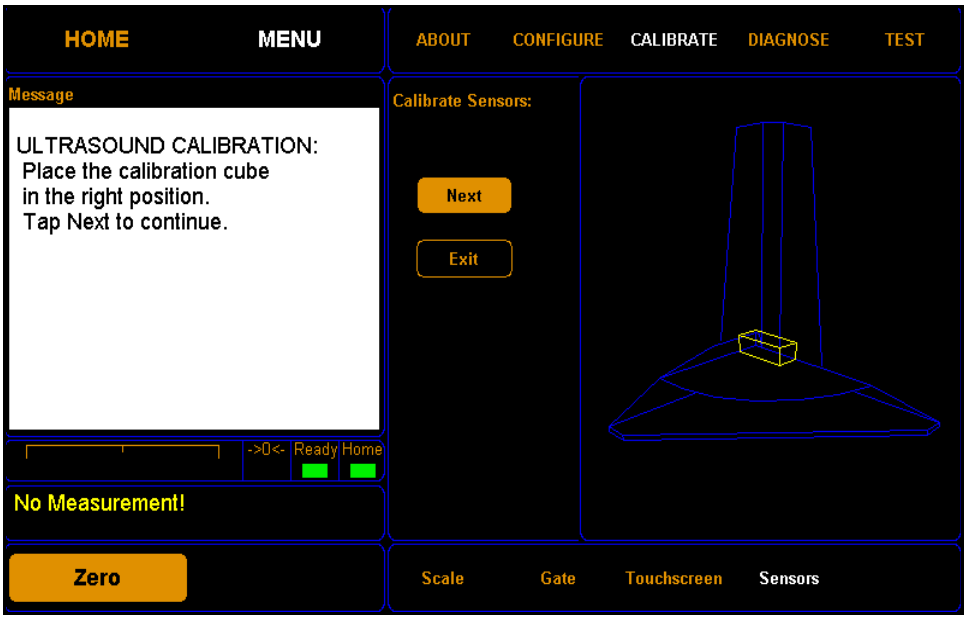


Figure 54
Fourth Sensor Calibration Screen

6. The following screen is displayed. Turn the calibration cube so that it is standing on its end in the corner with the 12" side perpendicular to the

platform (make certain the calibration cube is touching both side panels), as shown below. Tap **[Next]** to continue.

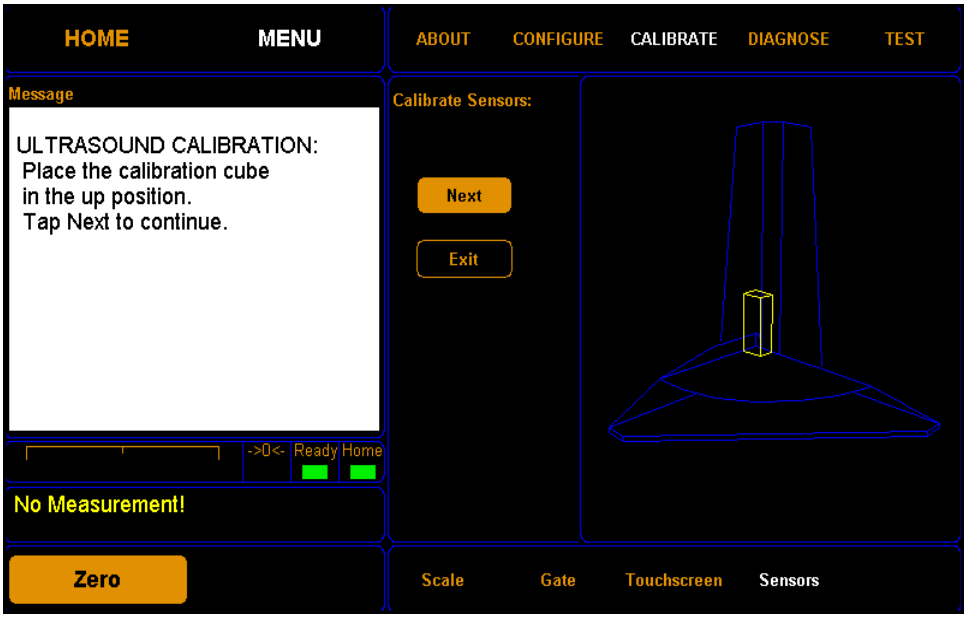


Figure 55
Fifth Sensor Calibration Screen

7. You have now finished calibrating the ultrasound sensors. Tap **HOME** to return to the home screen or if you would like to try calibrating the sensors again, tap **[Next]**.

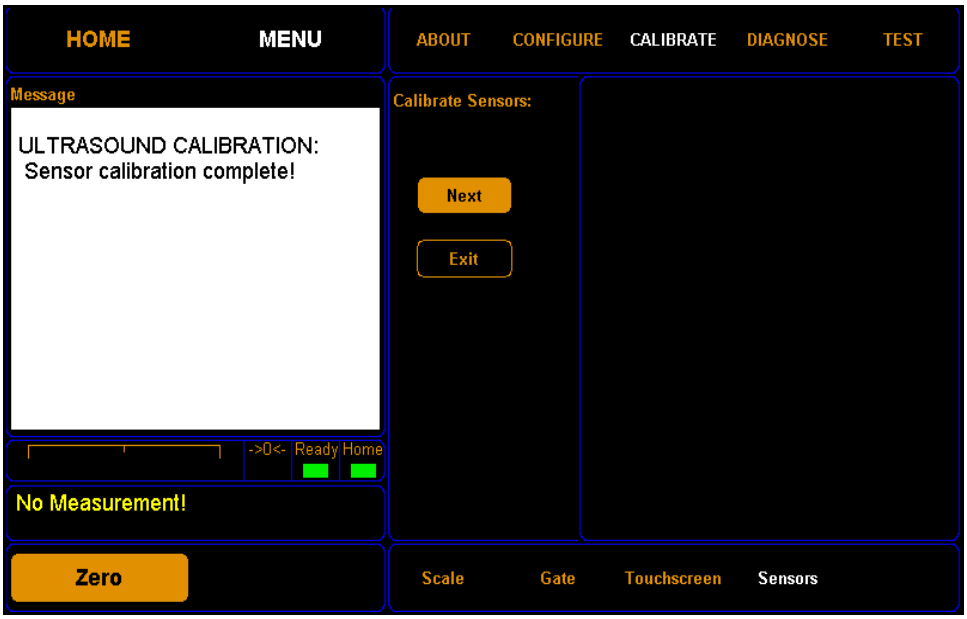


Figure 56
Sensor Calibration Complete

Chapter 6
Maintenance

This chapter provides information on the care and maintenance of the CubiScan 125. Routine maintenance and careful handling will help keep the CubiScan 125 in good operating condition and prevent service calls or repairs.

Precautions

The CubiScan 125 should not be subjected to extremes in temperature or humidity, nor should it be subjected to excessive vibration. For environmental recommendations, see "Placement" on page 6.

Do not put packages on the platform that are known to be over 50 pounds (25 kg). All objects, especially heavy ones, should be placed on the platform gently. Shock loading will occur if an object is dropped or thrown onto the platform. This puts unnecessary and potentially damaging pressure on the load cell.

The CubiScan 125 has been designed to accept overload without damage. However, rough handling and abuse, over time, can cause the load cell to lose much of its spring action. In addition, severe shock loading can cause permanent zero shift, making the scale inoperable.

Cleaning the Ultrasound Sensors

The sensors should be kept clean. While dust normally won't interfere with sensor operation, they should be cleaned routinely to prevent the possibility of interference. To clean, gently blow dust from the surface or wipe gently with a dry microfiber cloth.

NOTE ☞ *The screen on the front of the sensor is delicate. Do not use high pressure air or water lines to clean the surface and do not touch it with fingers, tools, or brushes. Doing so may result in damage.*

Cleaning the Gate Filters

This section describes how to clean the gate filters. The gate filters should be kept clean. While dust normally won't interfere with sensor operation, they should be cleaned routinely to prevent the possibility of interference.

To clean the gate filters, use a clean, damp (if needed) microfiber cloth. Use water to dampen the cloth; **do not clean the gate filters with a solvent as this could cause damage**.

Removing the Controller

If you suspect that there is a problem with the CubiScan 125 controller, first review the Troubleshooting chapter and take any recommended action. If the problem persists, contact Quantronix Technical Assistance at +1 (801) 451-7000 for assistance.

If Quantronix recommends removing the controller and returning it for service, proceed as follows.

1. Turn off the power switch, and disconnect the power cord from the control box.

2. Remove the glass platform from the CubiScan 125 base. It can simply be lifted out.

3. Place the platform in a safe location where it will not get stepped on or broken.

4. Locate the control box (the metal box directly behind the touchscreen).

5. Disconnect all connectors that are attached to the control box, as follows:

   - To remove a sensor connector, press the tab on the connector to release it, and pull it straight out.
   - To remove the Ethernet cable connector, press the tab on the connector to release it, and pull it straight out.
   - To remove the load cell connector, turn the screws to loosen the connector, and pull it straight out.
   - To remove the power connector, take hold of the connector close to the panel, and pull it straight out using even pressure.

- To remove a serial cable, loosen the screws (with a screwdriver if necessary), and pull the cable connector out using even pressure.

6. Remove the four Allen head screws on the corners of the control box mounting plate (see Figure 57 above) using a 1/8" Allen wrench. The touchscreen is in the center of the mounting plate, and the mounting plate is attached to the front of the CubiScan 125 base.

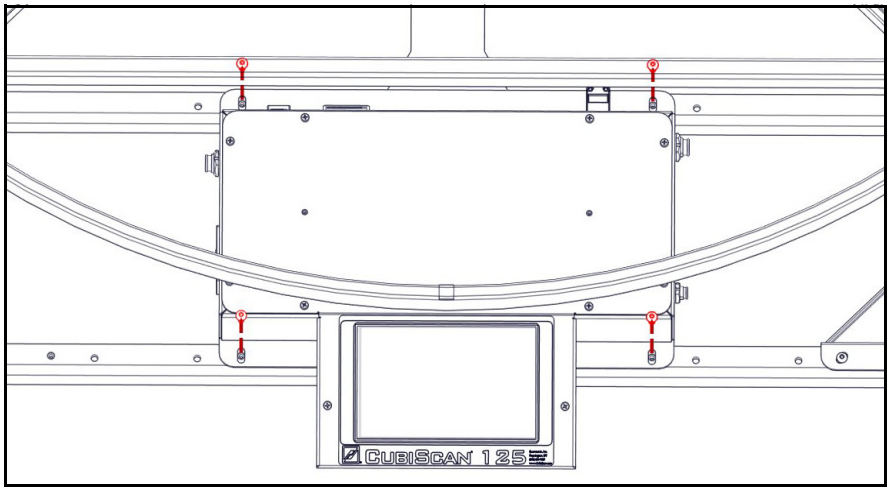


Figure 57
Control Box

7. Verify that all cables have been removed from the control box, then pull the box out from the front.

Chapter 7
Troubleshooting

This chapter provides assistance in identifying and solving common problems with the CubiScan 125. If you encounter problems not covered in this chapter, or if a defect is suspected, call Quantronix Technical Assistance at +1 (801) 451-7000 for assistance.

After installation, some problems are caused either by incorrect cabling or because the system setup is not correct. If you are having problems with the CubiScan 125, first verify that all cables attached to the controller box (serial communications cables, sensor cables, power cord, Ethernet cable, load cell cable) are fully seated and secure (locking rings, clips, or screws). Then, verify that the setup is correct. For information on the setup, refer to Chapter 2 "Setup" or to the *Qbit User Guide*.

Problems with your computer may affect operation of the CubiScan 125 system. If you have trouble starting Qbit or if you encounter problems with your computer (including computer-related error messages), refer to your computer manual or contact your computer representative or dealer for assistance.

Frequent computer errors may be caused by dust or static electricity. It is important that your computer be kept as clean and static free as possible. Consult your computer manual for information.

If problems continue, review the following sections for more information.

No Response When You Turn Power On

If there is no response when you power on the CubiScan 125, do the following:

1. Verify that the AC power cord is pressed firmly into the power socket.
2. Check the fuse in the fuse drawer next to the power switch.
3. Verify that the AC power source is working properly.

Contact Quantronix if you require additional help.

Scale Readings Are Not Accurate

If you suspect that the CubiScan 125 scale readings are inaccurate, do the following:

1. Zero the CubiScan 125 by making sure the platform is free of all objects and then selecting **Zero** from the toolbar or Tools menu in Qbit. (If a computer is not connected, tap the **[Zero]** button on the touchscreen.)
2. Make sure that the CubiScan 125 is on a level surface.
3. Move the CubiScan 125 if it is located close to open freight doors or where air is blowing on it. Extreme air flow can affect the accuracy of the CubiScan 125. Refer to "Placement" on page 6 for information.
4. Recalibrate the CubiScan 125. Refer to page 40 for instructions.

Dimension Readings Are Not Accurate

If you suspect that the CubiScan 125 dimension readings are inaccurate, do the following:

1. Check the glass platform and gate filters for dirt or debris. Clean the glass platform with a clean, damp cloth.
2. Verify that the image is representative of the measured item. If not, check gate diagnostics of the CubiScan 125. Refer to "Gate Diagnostics" on page 69 for further information.

Computer Error Messages

The following error messages generated by Qbit indicate a communications problem between the CubiScan 125 and the computer.

No Communications with CubiScan 125

This message indicates that no communication is taking place between the computer and the CubiScan 125.

Transmission Error

This message indicates that erroneous or garbled data is being sent from the CubiScan 125.

If you receive one of these messages, verify the following.

1. Is the CubiScan 125 turned on and securely connected to power?
2. Is the serial cable or Ethernet cable connected to both the CubiScan 125 and the computer or network, and are both connections secure?
3. (Computer connection) Is the serial cable connected to the computer at either the COM1 or COM2 port?
4. (Computer connection) Is the Com Port in the Options dialog box (Tools menu) configured for the correct port?
5. (Network connection) Is the CubiScan 125 properly configured for TCP/IP communication? (Qbit software is used to configure the CubiScan 125.)
6. Is there a problem with the CubiScan 125? Perform the Status function in Qbit to check the status of the CubiScan 125.
7. Is there a problem with the computer or network? Refer to your computer manual for information on troubleshooting the computer, or contact your network administrator.

About

This section describes the About menu of the CubiScan 125. The About menu contains useful information and records of the CubiScan 125.

Version

This section discusses the options available on the Version menu. Complete the following steps to access the Version menu.

1. Tap **MENU** at the home screen.

Figure 58
Home Screen

2. Tap **About**. Select the **Version** option if it is not already selected.

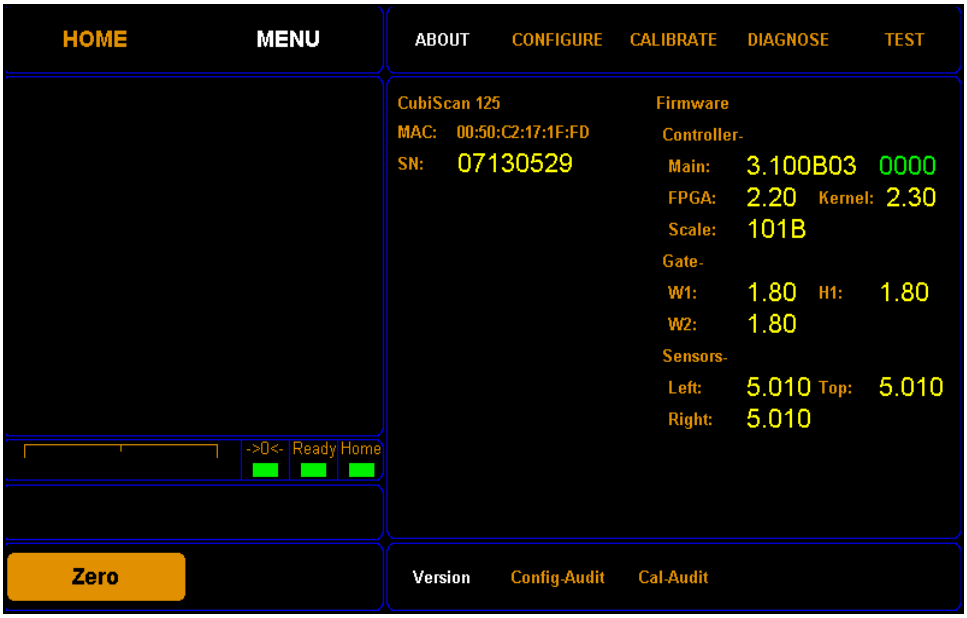


Figure 59
About Version

MAC This field displays the Media Access Control (MAC) address.

SN This field displays the product number that is unique to each CubiScan 125.

Main This field displays the firmware version used for the main controller.

FPGA This field displays the firmware version used for the FPGA.

Kernel This field displays the firmware version used for the kernel.

Scale This field displays the firmware version used for the scale.

W1, H1, W2 These fields display the firmware used for the width 1 and 2 boards, as well as the height 1 board.

Left, Top, Right These fields display the firmware used for the left, top, and right ultrasound sensors.

Config-Audit

This section discusses the Config-Audit menu. Complete the following steps to access the Config-Audit menu.

1. Tap **MENU** at the home screen.

Figure 60
Home Screen

2. Tap **About**. Select the **Config-Audit** option if it is not already selected.

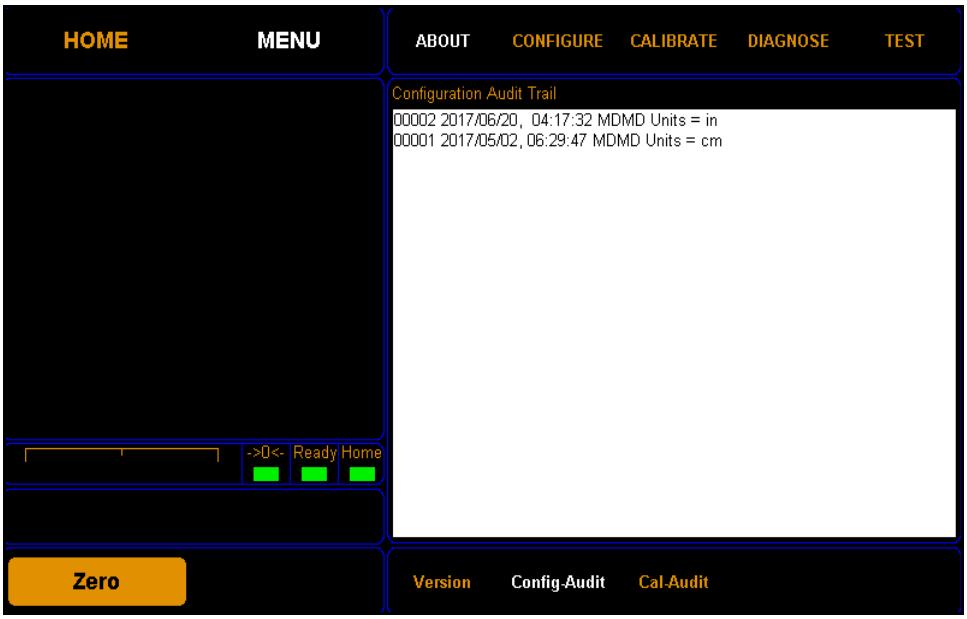


Figure 61
About Config-Audit

Configuration Audit Trail This field displays the configuration audit history.

Cal-Audit

This section discusses the Cal-Audit menu. Complete the following steps to access the Cal-Audit menu.

1. Tap **MENU** at the home screen.

Figure 62
Home Screen

2. Tap **About**. Select the **Cal-Audit** option if it is not already selected.

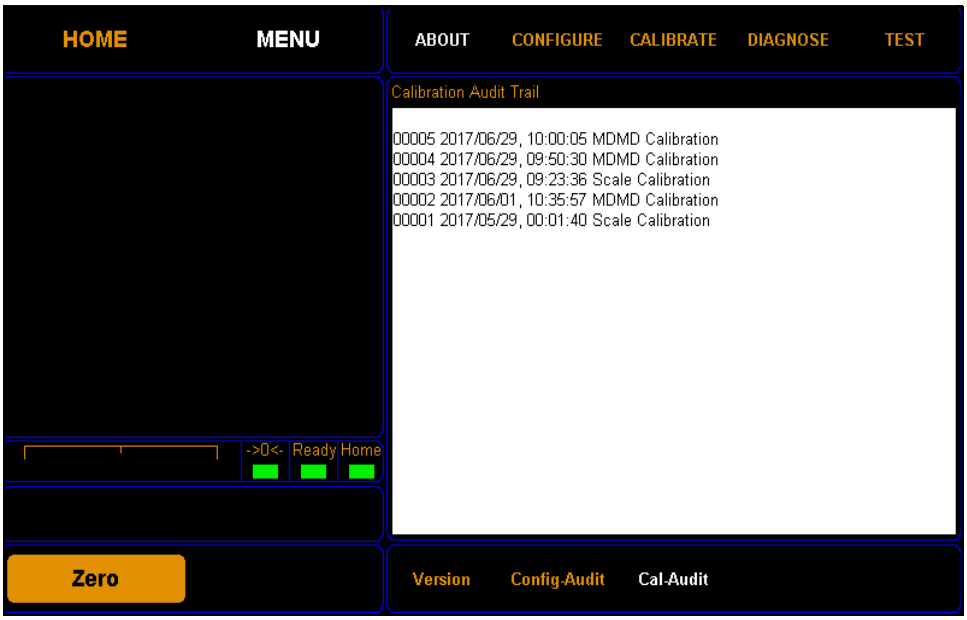


Figure 63
About Cal-Audit

Calibration Audit Trail This field displays the scale calibration history.

Diagnostics

This section describes the diagnostic capabilities of the CubiScan 125.

Scale Diagnostics

Complete the following steps to view the Scale Diagnostics.

1. From the home screen, tap **MENU**.

Figure 64
Home Screen

NOTE ☞ *If you have set up a password previously in the system configuration, you need to enter the password to unlock the menu. Refer to page 32.*

2. Tap **DIAGNOSE**. Select the Scale option if it is not already selected.

Figure 65
Scale Diagnostics

From this screen you can view the diagnostic scale values.

LDW This field displays the dead weight count.

LWT This field displays the full weight count.

Motion This field displays the motion status of the scale.
0=No motion
1=Motion

Wgt This field displays the current weight.

COZ This field displays the center of zero.

AM This field displays the auto zero tracker.

Zero This field displays whether there is weight on the scale or not.
0=Weight on scale
1=No weight on scale

Tare This field displays the zero adjustment count.

Gate Diagnostics

Complete the following steps to view the gate diagnostics.

1. From the home screen, tap **MENU**.

Figure 66
Home Screen

NOTE ☞ *If you have set up a password previously in the system configuration, you need to enter the password to unlock the menu. Refer to page 32.*

2. Tap **DIAGNOSE**. Select the Gate option if it is not already selected.

Figure 67
First Gate Diagnostic Screen

From this screen you can view the sensitivity threshold board settings.

The three LED beam bars now shown on the display represent the LED beams that the CubiScan 125 uses to measure objects. This is a useful screen for determining the functionality of the LED beams.

The width and height bars correspond to the width and height boards in the measurement gate.

These LED beams bars are blue when no light beams are being broken (as seen above), which typically means that there is no object in the measurement field.

The emitter checkbox should always be checked when you are measuring objects. When this box is unchecked, the gate is not emitting light and cannot measure objects.

3. Tap the **[>]** button to go to the next screen.

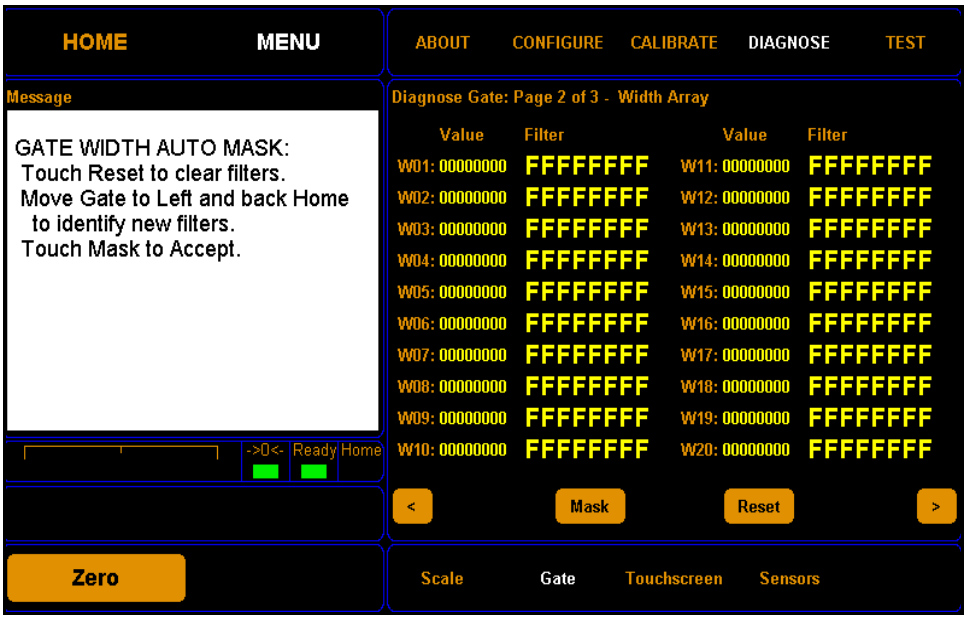


Figure 68
Second Gate Diagnostic Screen

From this screen you can view the gate width array settings and automatically mask width LEDs that are malfunctioning. No more than three LEDs should be masked at one time, or measurements may be affected.

To mask malfunctioning LEDs, complete the following steps.

Step 1.0 Clear the glass platform of all objects.

Step 1.1 Tap **Reset** to clear any masks that may have been previously set.

Step 1.2 Move the gate slowly from the home position (right-hand side) all the way to the left side and back to the home position. Malfunctioning LEDs appear as yellow tick marks

on the blue LED beam bars. The image below shows three malfunctioning LEDs that could be masked.

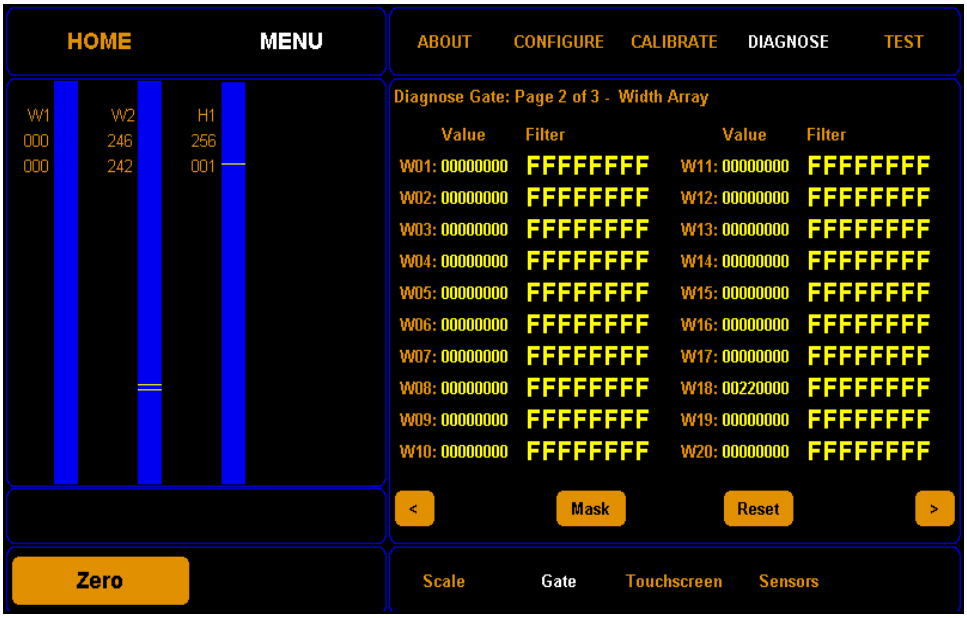


Figure 69
Gate Mask Tick Marks

Step 1.3 Tap **Mask** to mask the LEDs shown on the blue beam bars. When the LEDs are masked, they will no longer be used to take measurements. If you want to clear all masks, tap **Reset**.

2. Tap the **[>]** button to go to the next screen.

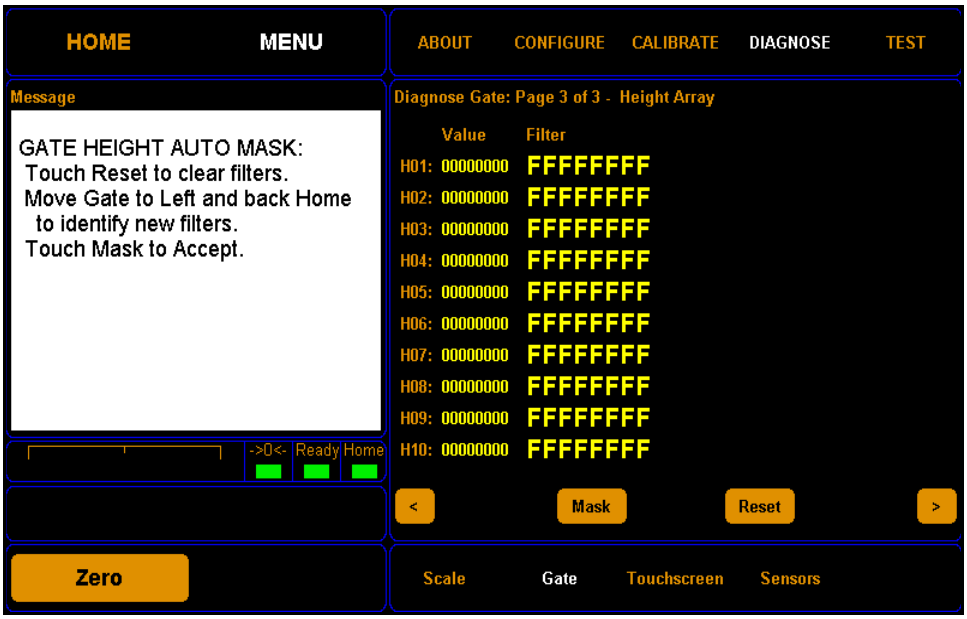


Figure 70
Third Gate Diagnostic Screen

Touchscreen Diagnostics

Complete the following steps to view the touchscreen diagnostics.

1. From the home screen, tap **MENU**.

Figure 71
Home Screen

NOTE ☞ *If you have set up a password previously in the system configuration, you need to enter the password to unlock the menu. Refer to page 32.*

2. Tap **DIAGNOSE**. Select the Touchscreen option if it is not already selected.

Figure 72
Diagnostic Touchscreen

From this screen you can view the linearization parameters of the touchscreen.

To test the calibration of the touchscreen you can touch the screen and a **x** should appear.

Sensor Diagnostics

Complete the following steps to view the sensor diagnostics.

1. From the home screen, tap **MENU**.

Figure 73
Home Screen

NOTE ☞ *If you have set up a password previously in the system configuration, you need to enter the password to unlock the menu. Refer to page 32.*

2. Tap **DIAGNOSE**. Select the Sensors option if it is not already selected.

Figure 74
Diagnostic Sensors

From this screen you can view the sensor diagnostics for the left, right, and top sensor.

DBW This field displays the distance from the back wall to the sensor.

CPI This field displays the counts per inch.

Pulses This field displays the number of pulses the sensor has received.

Gain This field displays the gain step distance, which affects the sensor sensitivity.

Blank This field displays the blanking value, which is the dead zone in front of a sensor.

Delay This field displays the internal timing parameter of the sensor in milliseconds.

Tmpr This field displays the internal temperature of the sensor.

Length
Width
Height These fields display the current length, width, or height measurement.

Testing

This section describes the factory testing capabilities of the CubiScan 125. Data in this section should not be altered unless you are instructed to do so by a Quantronix employee.

Scale

Complete the following steps to view the Scale Testing.

1. From the home screen, tap **MENU**.

Figure 75
Home Screen

NOTE ☞ *If you have set up a password previously in the system configuration, you need to enter the password to unlock the menu. Refer to page 32.*

2. Tap **TEST**. Select the Scale option if it is not already selected.

Figure 76
Test Scale

From this screen you can test for scale repeatability. Only run this test if instructed to by a Quantronix employee.

Gate

Complete the following steps to view the Gate Testing.

1. From the home screen, tap **MENU**.

Figure 77
Home Screen

NOTE ☞ *If you have set up a password previously in the system configuration, you need to enter the password to unlock the menu. Refer to page 32.*

2. Tap **TEST**. Select the Gate option if it is not already selected.

Figure 78
First Gate Test Screen

From gate diagnostic screens one through two, you can run and view the results of the cube test. Only run this test if instructed to by a Quantronix employee.

3. Tap **[>]** twice to reach the third gate diagnostic screen.

Figure 79
Third Gate Diagnostic Screen

From this screen you can run a flicker test for internal gate testing purposes.

You should only run this test if you are instructed to by a Quantronix employee.

Appendix A
Parts List

Following is a list of parts that can be purchased for the CubiScan 125 as spare parts or if replacement is necessary.

Part No.	Description	Quantity/Unit
13206	Main Controller Assembly	1
11291	Sensor Assembly	3
12890	Plate, Glass	1
12648	USB Cable	1
11493	Serial Communications Cable, 10 ft.	1
10083	Cord, AC Power *	1
10273	Calibration Cube, 12" x 5" x 3.6", Black	1
13339	Encoder with Connector	1
13357	User Manual	1

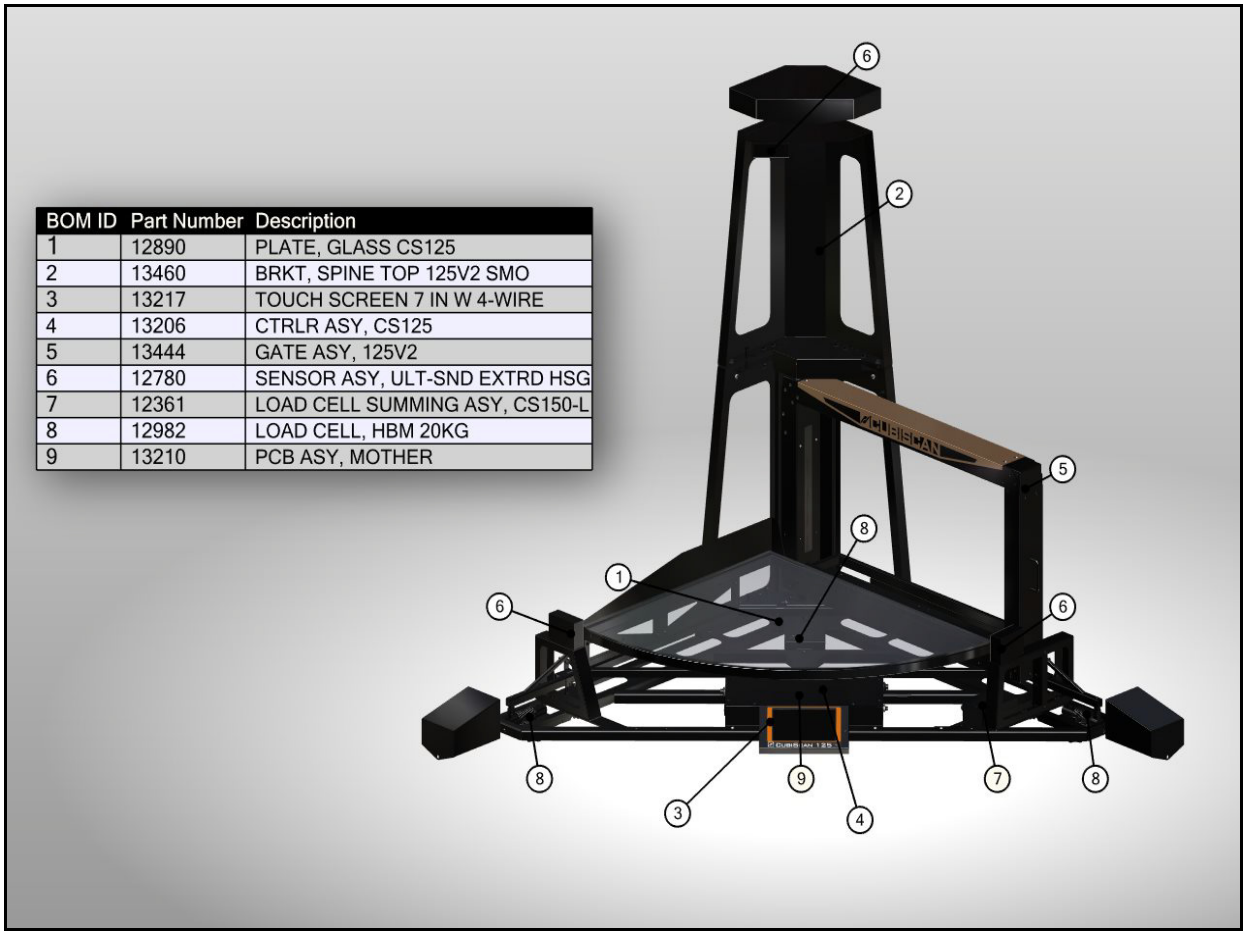


Figure 80
Parts List

Appendix B
Firmware Log

Following is the firmware log that records updates and changes to the CubiScan 125 firmware.

Firmware	Build	Date	By	Description
3.00	B01	2017/3/28	RLK	Initial Build