

# Cubiscan® 225-HS



## Operations and Technical Manual

Version 1

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**CUBISCAN®**

## Cubiscan 225-HS Operations and Technical Manual

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### CAUTION

The Cubiscan 225-HS should only be serviced by qualified personnel.

Observe precautions for handling electrostatic sensitive devices when setting up or operating the Cubiscan 225-HS.



### WARNING

Disconnect all power to the Cubiscan 225-HS before servicing or making any connections.

Do not climb on the Cubiscan 225-HS conveyor. Keep fingers, hair, loose fitting clothes, etc., away from the conveyor belt while it is in motion.

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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 Cubiscan at [manual@Cubiscan.com](mailto:manual@Cubiscan.com).

Manual updated September 4, 2020.

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# CHAPTER 1

## PRODUCT DESCRIPTION

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The Cubiscan 225-HS can be used as a stand-alone unit, or it can be installed in an “in-line” configuration with auxiliary conveyors.

This system is a precision, in-line dimensioning system that is integrated into a conveyor—allowing objects to be measured quickly and accurately. The Cubiscan 225-HS is capable of measuring boxes and irregularly-shaped objects with high precision.

The Cubiscan 225-HS provides the solution to on-demand box making and results in higher degrees of accuracy, reduced packaging and shipping costs, and economized use of storage.

The standard measurement capacity is 24 x 24 x 60 inches (60 x 60 x 150 cm) with a resolution of 0.05 inches (1.0 mm) while requiring an interval of only 6 inches (15 cm) between objects. The integrated belt conveyor has a variable speed of 50 to 100 ft (15 to 30.5 m) per minute. This system includes a built-in touchscreen interface but can also be connected and operated by PC. An optional laptop tray can be attached directly to the Cubiscan 225-HS. Cubiscan software, Qbit, can be used with the Cubiscan 225-HS to create menu-driven operator controls, data storage, transfer, and diagnostics. The Cubiscan 225-HS comes ready to fit your dimensioning needs.



**FIGURE 1**  
*Cubiscan 225-HS*

## Specifications

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### Power Requirements

110 to 240 VAC single-phase, 50 to 60 Hz

### Environmental

Operating Temperature: 32° to 104° F (0° to 40° C)

Humidity: 0 to 90% non-condensing

## Measuring Sensor

Infrared light beam

## Measuring Capacities

### Measurement Range

Length: 6.00 to 60.00 in (15.0 to 150.0 cm)  
Accuracy +/- 0.25 in (0.6 cm)

6.00 to 96.00\* in (15.0 to 240.0 cm)  
Accuracy +/- 0.50 in (1.0 cm)

Width: 0.50 to 24.00 in (1.0 to 60.0 cm)  
Accuracy +/- 0.10 in (0.2 cm)

Height: 0.20 to 24.00 in (0.5 to 60.0 cm)  
Accuracy +/- 0.10 in (0.2 cm)

\* For length of 96", additional conveyer is required.

Weight Limit: 50 lb (23 kg)

Measurement Increment: 0.05 in (0.1 cm)

Belt Speed: 50 to 100 ft (15 to 30.5 m) per minute

Minimum Interval Between Objects: 6.00 in (15.0 cm)

Object Colors: Opaque

## Physical

Length: 102 in (259 cm)

Width: 35 in (90 cm)

Height: 61 to 69 in (154 to 175 cm) (Adjustable legs)

Weight: 665 lb (301 kg)

## User Interface

Cubiscan's Qbit™ software can be used to interface with the Cubiscan 225-HS.

Display:

Integrated TFT LCD Touchscreen (1024 x 768) displays L, W, H, unit of measure, 2D and height profile, diagnostic codes.

Outputs:

Serial (1), Ethernet (1), USB (1)

# CHAPTER 2

## GETTING STARTED

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This chapter provides instructions for getting started with the Cubiscan 225-HS. It describes the operating environment, various components of the Cubiscan 225-HS, and how to connect to a computer (optional).

### Operating environment

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The Cubiscan 225-HS 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 225-HS to extremes in temperature or humidity. Locate the Cubiscan 225-HS inside, as far from open freight doors as possible.
- Protect the Cubiscan 225-HS from static electricity, especially the touchscreen.
- Orient the Cubiscan 225-HS so the touchscreen faces the operator.
- Place the Cubiscan 225-HS on a level floor. The Cubiscan 225-HS must be level to operate properly.

### Components of the Cubiscan 225-HS

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Below is an overall view of the Cubiscan 225-HS and its main components.

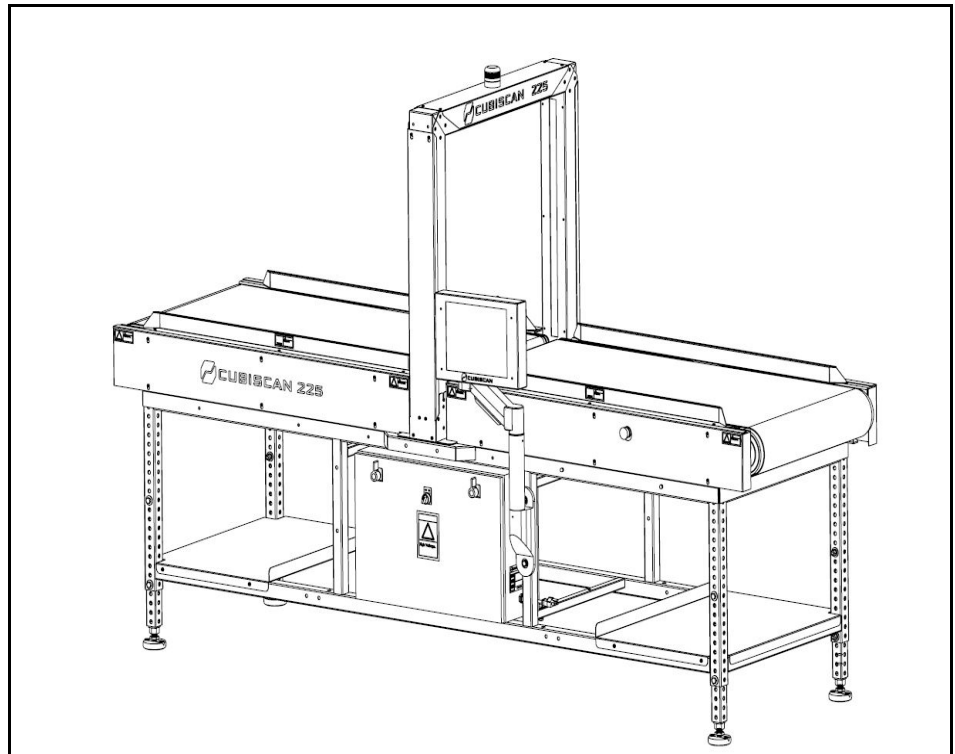


Figure 2  
Overall drawing

## Turning the Cubiscan 225-HS on/off

To turn the Cubiscan 225-HS on, turn the switch to the on position, shown below.

To turn the Cubiscan 225-HS off, turn the switch to the off position.

If the Cubiscan 225-HS is not turning on when you turn the switch to the **ON** position, you may need to reset the breaker.



Figure 3  
On/off switch

## Connecting to a computer (optional)

To connect the Cubiscan 225-HS to a computer, do the following.

1. Place the computer close to the Cubiscan 225-HS.
2. Locate your preferred port. See Figure 4.
3. Choose from one of the following operating methods.
  - Connect the Cubiscan 225-HS to a host system via a standard 10/100 Base-T Ethernet TCP/IP port. You can use Qbit software or the touch-screen options to configure the Cubiscan 225-HS for TCP/IP communication. Contact Cubiscan for information on available software. Or, refer to [Appendix A "Parts List"](#) on page 47 for command protocol and setup parameters.
  - Connect the Cubiscan 225-HS to a PC using a USB cable.
  - Connect the Cubiscan 225-HS 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 225-HS.

- Operate the Cubiscan 225-HS without a computer using the touchscreen. Refer to “Dimensioning using the touchscreen” on page 17 for information.

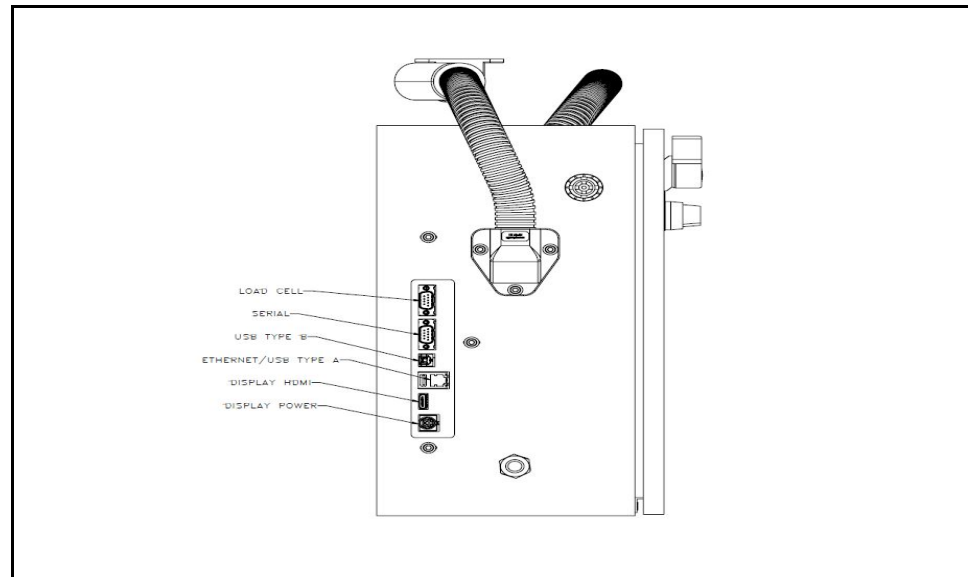


Figure 4  
Drawing showing ports

## Connecting to a computer via Ethernet to USB adapter

This section describes how to use a TRENDnet Ethernet to USB adapter to connect a computer to the Cubiscan 225-HS.

Use Cubiscan’s Qbit software (refer to the *Qbit User Guide*) or the touchscreen options (see Chapter 4 “Configuration”) to configure the Cubiscan 225-HS for TCP/IP communication, or refer to the separate *Communications Protocol* document for information on the TCP/IP command protocol and setup parameters. Contact Cubiscan if you need additional assistance.

If you are using the Ethernet to USB connection option:

1. Install the driver that is needed, for further information on installing the driver, see below.
2. Connect the Ethernet cable to the Cubiscan 225-HS’s Ethernet port, as shown in Figure 4.
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.

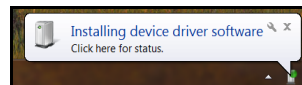


Figure 5  
*Installation bubble*

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

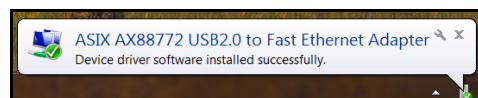


Figure 6  
*Device installed bubble*

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

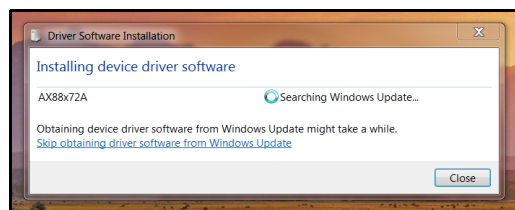


Figure 7  
*Installation process bubble*

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

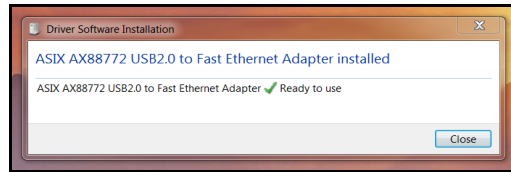


Figure 8  
*Adapter is ready to use*

### Access Ethernet network settings

Once the driver is installed you should set the static IP address and the Subnet mask. 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.

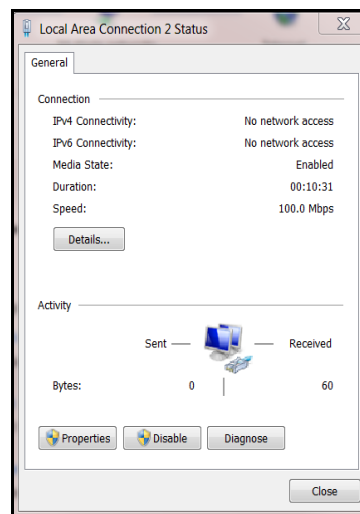


Figure 9  
*Status window*

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

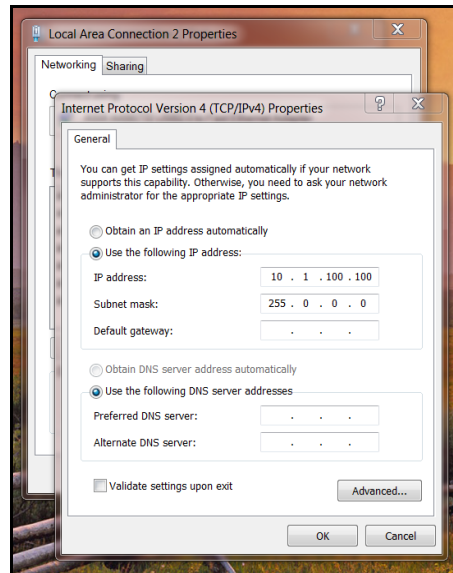


Figure 10  
General Properties Window

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 will communicate with the Cubiscan 225-HS.

## Connecting to a computer via USB

This section describes how to use a USB connection to connect a computer to the Cubiscan 225-HS. This method is not recommended for the Cubiscan 225-HS.

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

1. Connect the USB cable to the Cubiscan 225-HS's USB port located on the controller box, as shown in Figure 4.
2. Connect the USB cable to the PC.

## Connecting to a computer via Serial (RS-232-C)

If you are using the RS-232 serial communications cable (not supplied), 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 225-HS's serial port, as shown in Figure 4.
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).

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 225-HS.

The *Qbit User Guide*, located on the flash drive, provides instructions for installing and using Qbit. You can also download the user guide from the Cubiscan web site at [www.cubiscan.com](http://www.cubiscan.com).

# Moving the touchscreen

---

The swiveling touchscreen can be mounted adjacent to either side of the gate, depending on your configuration needs. The placement options are shown below.

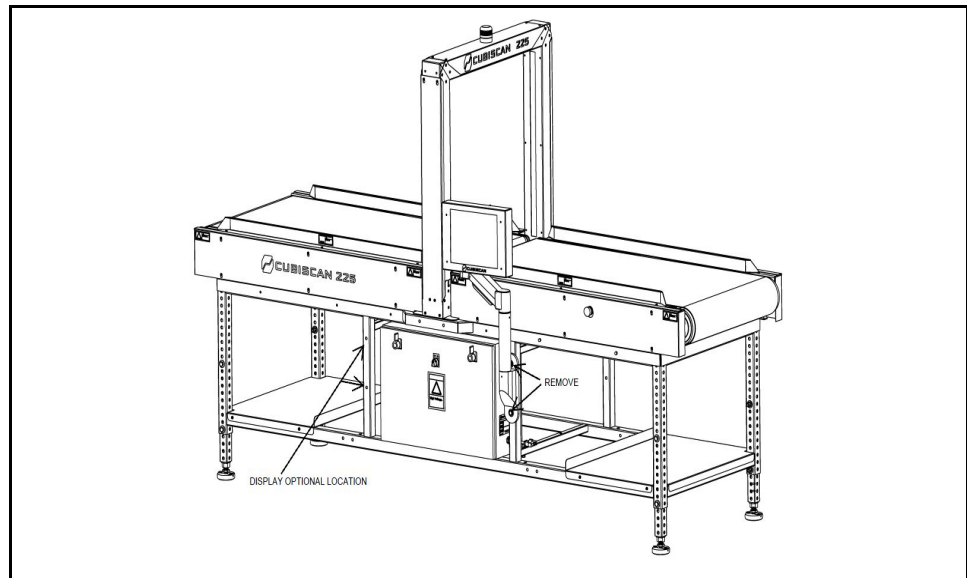


Figure 11  
*Placement Options*

To move the touchscreen, complete the following steps.

1. Power off the Cubiscan 225-HS.
2. Disconnect the cord from the touchscreen.
3. Lift the touchscreen stand out of the touchscreen holder and place it in a safe location.
4. Use a 3/16" Allen wrench to remove the socket head cap screws that are holding the brackets in place.
5. Reattach the touchscreen holder in your preferred location.
6. Place the touchscreen stand into the touchscreen holder.
7. Secure the brackets and screws back into place.
8. Reattach the cable from step 2.

# CHAPTER 3 OPERATION

This chapter provides instructions for operating the Cubiscan 225-HS.

## Cubiscan 225-HS touchscreen

You can use the touchscreen (shown below) to configure and control the Cubiscan 225-HS as well as display measurement results.

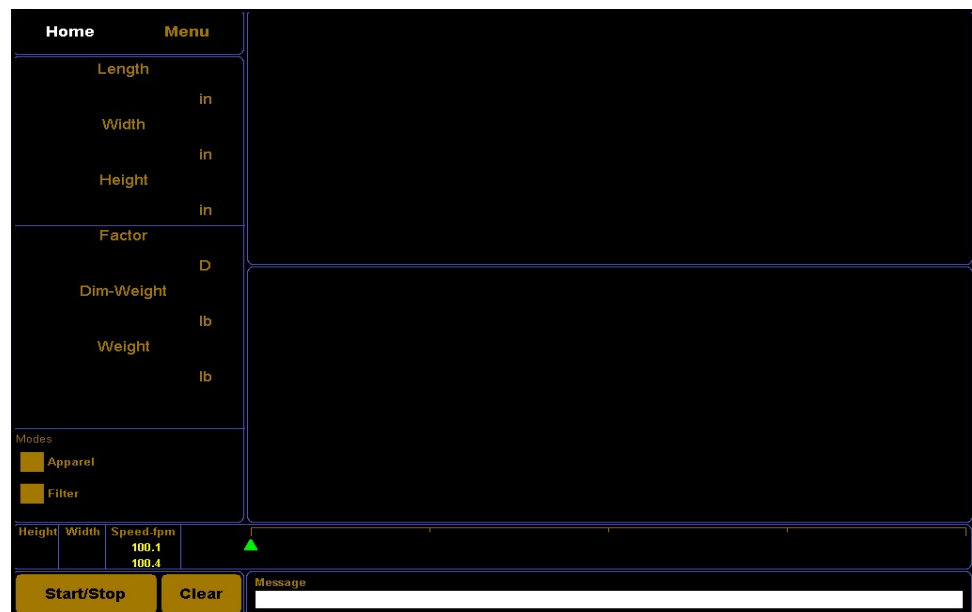


Figure 12  
Cubiscan 225-HS home screen

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 **[Menu]** to select configuration or calibration functions.
- Tap **[Start/Stop]** to begin or stop measurement.
- Tap **[Clear]** to clear the screen of previous measurement data.

The home screen displays the XY view (top-down view) on the upper left of the screen. The Z view (side view) is displayed on the lower left of the screen.

The green cursor follows a measurement that is being taken.

Length	These display the measured dimensions in inches (in) or centimeters (cm) as selected. You can also view the height and width of an item near the bottom left of the screen.
Width	
Height	
Factor	This displays the dimensional factor used to determine the dimensional weight of an item.
DimWeight	This displays the dimensional weight of an item based on the dimensional factor.
Weight	This displays the actual weight of an item.
Barcode	You can view an item's barcode here.
Modes	By tapping the box next to <b>[Tray]</b> , you can enable or disable the tray mode. When selected, the Cubiscan 225-HS can measure items that would normally be too small for the gap in the conveyor belts. For more information on this feature, see "Tray" on page 33.
Speed-fpm	The belt speed is displayed here.
Menu	Tap this key to go to the configuration menu to set up, calibrate, or diagnose the Cubiscan 225-HS.

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 22 for information on configuration and to "Diagnostics" on page 42 for information on diagnostics.

## Indicator light

The indicator light located at the top of the measurement gate displays the Cubiscan 225-HS's current status according to color.

Green	This means that the Cubiscan 225-HS is ready to measure.
Red	This means that the Cubiscan 225-HS has experienced an emergency stop or other failure.
No light	This means that the Cubiscan 225-HS is not ready to measure. There may be an object in the measurement field or there is LED blockage.

## 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.

## Dimensioning

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The Cubiscan 225-HS can be used to measure irregularly-shaped objects and boxes (refer to "Specifications" on page 2 for specifications and size limitations).

- |                    |  |
|--------------------|--|
| Weighing           | Objects are weighed by a coordinating scale prior to moving on the Cubiscan 225-HS's conveyor belt through the gate. (See page 27).                                  |
| Measuring          | Objects are measured by the infrared light beams on the Cubiscan 225-HS's gate when the object is moved underneath the gate by the conveyor belt.                    |
| Dimensional Weight | The Cubiscan 225-HS takes the weight and measurement data, and using a dimensional factor, calculates the dimensional weight of an object. (See "Units" on page 28). |
| Results            | Measurement results will only display when the Cubiscan 225-HS touchscreen is displaying the home screen.  |



Refer to the appropriate following section for instructions.

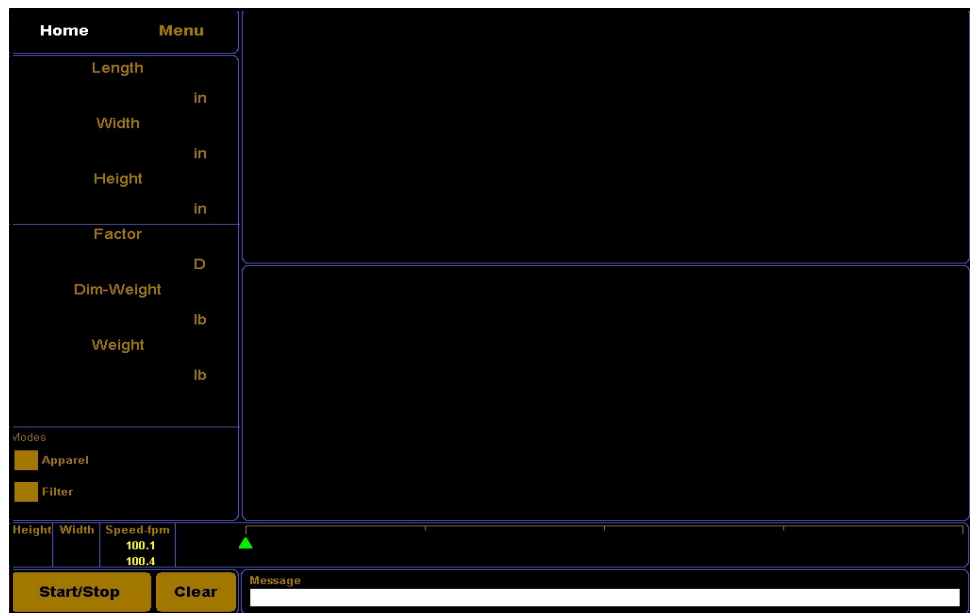


Figure 13  
Home screen

## Dimensioning 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 a flash drive, or you can download it from the Cubiscan website at [www.cubiscan.com](http://www.cubiscan.com).

## Dimensioning using the touchscreen

All controls and displays for the Cubiscan 225-HS are shown on the touchscreen. If a computer is not connected, you can use the touchscreen to measure objects. Measurements cannot be recorded; they are displayed on the touchscreen.

Measurement results will only display when the Cubiscan 225-HS touchscreen is displaying the home screen.



Figure 14  
Measurement display

**NOTE** > If you have not already done so, remove the thin protective film that covers the Cubiscan 225-HS touchscreen. Peel it back from one of the corners using your fingernail, and then pull it off.

## Measuring items

To measure items, complete the following steps.

1. Make sure that the conveyor belt is free of objects.
2. Turn the Cubiscan 225-HS on.
3. Tap **[Start/Stop]**. The conveyor belt will begin moving.
4. Place an item on the conveyor belt.

After the item passes through the measurement gate, the measurement results will be displayed on the touchscreen.

The measurement results will be displayed until the Cubiscan 225-HS measures another item. Examples of measurement results are shown below.

The Cubiscan 225-HS requires only a 6 inch (15 cm) gap between objects.

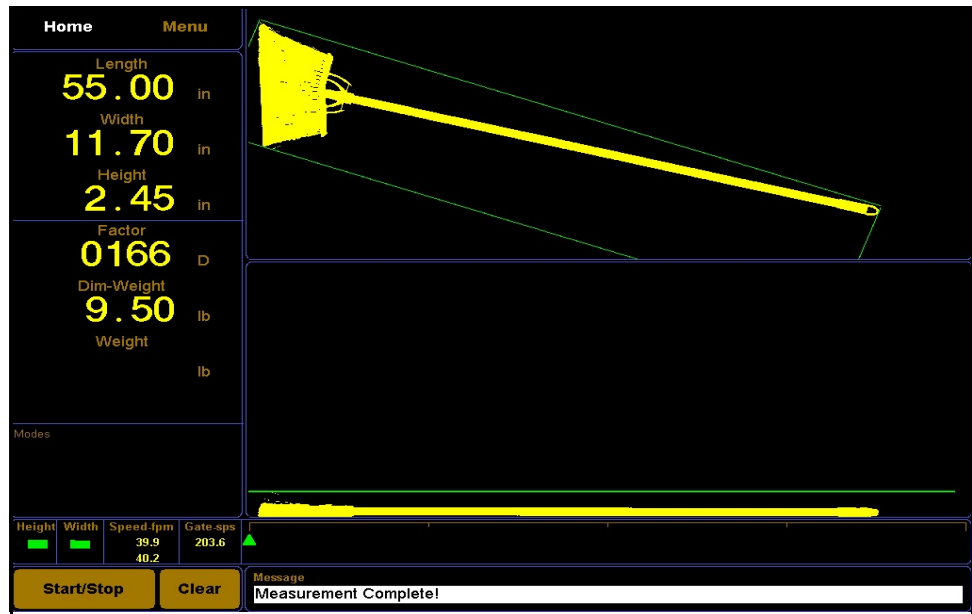


Figure 15  
Irregular item measurement results



Figure 16  
Box measurement results

When measuring items, be careful of pinch points. Refer to Figure 17 below.

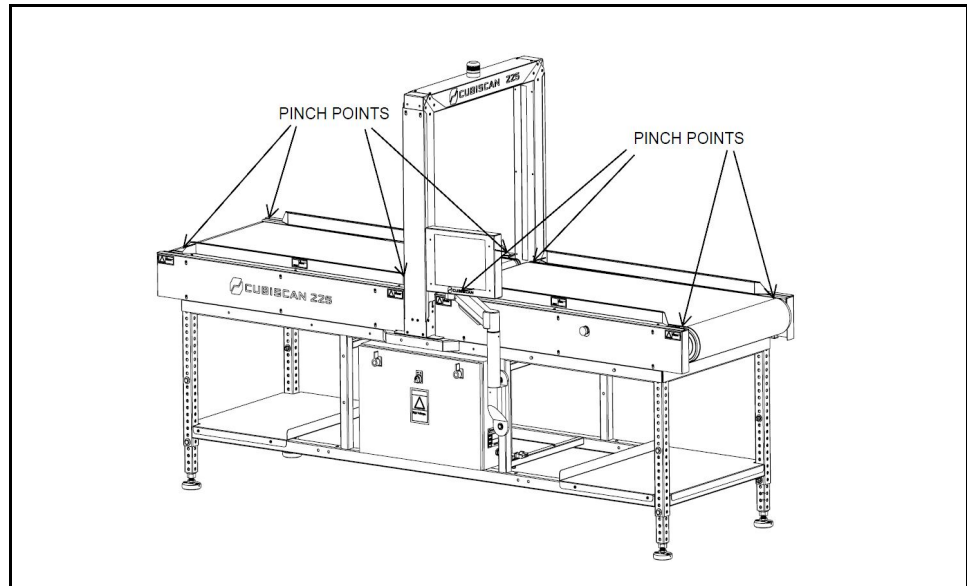


Figure 17  
*Pinch points*

## Special Features



You can measure items with an improved variety of available configurations. To learn more about these options, see "Special Features" on page 20.

# Emergency stops

---

The Cubiscan 225-HS has emergency stops located on both sides of the measuring gate, see Figure 18 below. These emergency stops should be used if the Cubiscan 225-HS needs to be stopped immediately.

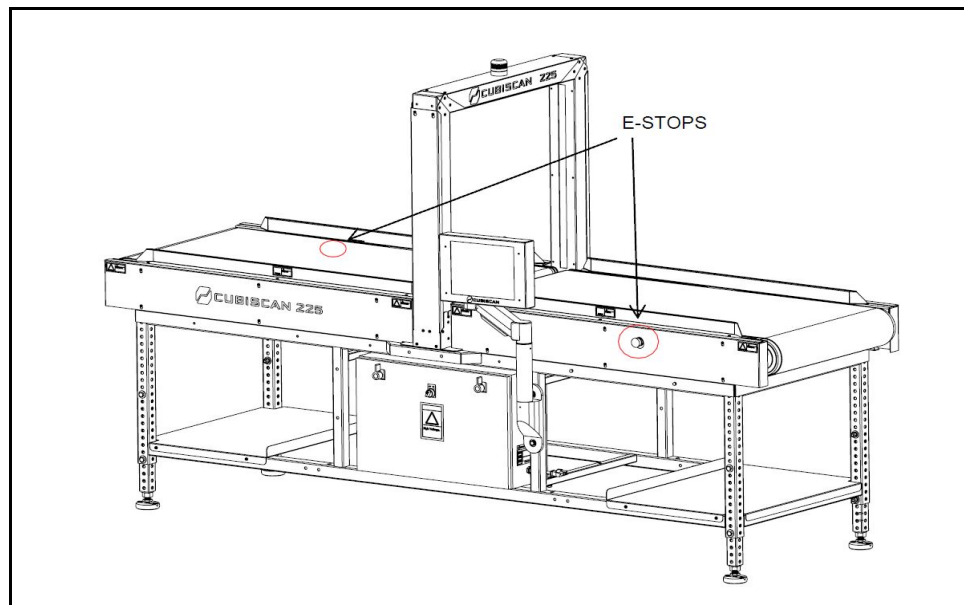


Figure 18  
*Emergency stops*

To activate the emergency stops, press either one of the emergency stop buttons in. This will cause all belt movement to cease.

To resume measuring after an emergency stop, you will need to twist the emergency stop button clockwise until it pops back out to its former position.

# CHAPTER 4

## CONFIGURATION

---

This chapter provides instructions for using the Cubiscan 225-HS touchscreen to set up the length, width, and height measurements, as well as special features that the Cubiscan 225-HS offers. This chapter also provides instructions for configuring the units and other settings. For information on calibrating the Cubiscan 225-HS touchscreen, refer to Chapter 5 "Calibration" on page 34.

If you have a computer connected to the Cubiscan 225-HS with Qbit installed, you can use Qbit to set up the measurement units, select the Cubiscan 225-HS communications port, 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 Cubiscan website at [www.cubiscan.com](http://www.cubiscan.com).

## About menu

---



After tapping **[Menu]**, tap **[About]** to view its sub-menus near the bottom of the screen which will allow you to tap and view the following screens.



Figure 19  
About alibi menu

- Version** This screen displays information about the machine, its **serial number**, and its firmware.
- Config-Audit** This screen displays the configuration audit trail which keeps records of configuration.
- Cal-Audit** This screen displays the calibration audit trail which keeps records of calibration.
- Alibi** You can enter a package number on this screen to find information about that particular package. (See Figure 19 above).

## System configuration



After tapping **[Menu]**, tap **[Configure]** at the top of the screen to view its sub-menus near the bottom of the screen, which will allow you to configure your system.



Figure 20  
Configure operation menu

## Operation

This screen displays options for using the Cubiscan 225-HS. You can check or un-check boxes or use the drop-down menus to select your preferred options. You can also tap on the numbers to customize them.

This screen is where you can enable the following options:

- Display Dim-Weight** Check this box if you want the dim weight and factor to be displayed on the home screen.
- Enable Bar code** Bar codes are displayed on the home screen when this box is checked.
- Enable Printer** When this box is checked, you can print labels containing package information.
- Enable Smallest Box** Checking this box will enable the Cubiscan 225-HS to display the dimensions of the smallest box in which an item will fit. This is the default mode. (See page 31).
- 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 Tray Mode** This mode, which requires a tray supplied by Cubiscan, enables the Cubiscan 225-HS to measure very small items that would normally fall into the gap between conveyor belts. (See page 33).



<b>Enable Auto Stop</b>	When auto stop mode is activated, the Cubiscan 225-HS will automatically stop the conveyor belt after a measurement has been taken.
<b>Enable EOB Message</b>	Checking this box will enable the Cubiscan 225-HS to report a message on the home screen when it detects the end of box as it exits the gate.
<b>Enable Remote Start</b>	When this option is enabled, the Cubiscan 225-HS relies on a programmable logic controller (PLG) to begin measurements. When this option is not checked, the [Start/Stop] button must be used to begin measurements.
<b>Enable Quiet Start</b>	Checking this box turns off the buzzer sound that occurs as a default when measurements begin.
<b>Conveyor Direction L&gt;R</b>	<p>The conveyor is designed to go from right to left. You can change the direction of the conveyor to go left to right by checking this box.</p> <p>On this screen, you can also set the following options. Tap the numbers to customize them.</p>
<b>Password</b>	Enter an optional password. If you set up a password, it must be entered each time you want to access the touchscreen menu.
<b>Comp. Hgt</b>	This field displays the height (85 mm) of the compression plate provided by Cubiscan. If different compression plate is used, you'll need to change the value in this field so that the Cubiscan 225-HS can subtract the height of the compression plate from measurements in which it is used.
<b>Tray Hgt</b>	This field displays the height (8 mm) of the tray provided by Cubiscan. If a different tray is used, you'll need to change the value in this field so that the Cubiscan 225-HS can subtract the height of the tray from measurements in which it is used.
<b>Min Wid</b>	This field allows you to set parameters to exclude width measurements smaller than a value you specify.
<b>Min Len</b>	This field allows you to set parameters to exclude length measurements smaller than a value you specify.
	This screen is also where you can set these features:
<b>Language</b>	Language options include English, French, Spanish, Japanese, and Chinese.
<b>Protocol</b>	The default protocol is standard, but you may also select 100-L (original) or expanded. The expanded protocol includes the date, time, and bar code.
<b>Img. file</b>	This drop-down menu allows you to select whether or not you want the Cubiscan 225-HS to generate .bmp images to be pulled from the machine. The XY BMP option will generate an image with the length and width, and the XY&Z BMP option will generate two downloadable files of the images with a height dimension as well as the length and width.

**Filter** When the filter is enabled, the Cubiscan doesn't measure excess items (such as a bag containing the product) and targets the item meant to be measured. (See [page 30](#)).

The drop-down menu offers different modes for using the filter feature. The options are disabled, enabled, auto-off, and lock-on.

When Enabled is selected, a filter mode check box will be visible on the home screen, and the mode can be enabled or disabled from the home screen.

When Disabled is selected, the check box will not be visible on the home screen.

When Auto-Off is selected, the operator will need to manually select the check box for each measurement.

When Lock-On is selected, the check box will always be checked and the Cubiscan 225-HS will take measurements in filter mode until the mode option is changed.

When the filter feature is used, the Cubiscan 225-HS 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, it is ideal for items in clear plastic bags.

**Apparel Method** This drop-down menu offers different methods for measuring apparel.

- **Compress Hgt. (mm)** This method produces compressed height results when using a compression plate.
- **Average Hgt** Some items have uneven heights. This method enables you to obtain the average height of an item.
- **Average Len & Wid** Some items have overstated lengths and widths. This method enables you to obtain the average dimensions of an item that may not have straight edges.
- **Compress Hgt, Average Len & Wid** When using this method with a compression plate, the results will show the compressed height, and the average length and width of an item that may not have straight edges.
- **Average Hgt, Len & Wid** This option is ideal to obtain realistic dimensions for apparel and other flexible objects without the use of a compression plate. The results will display the average height, length and width of an item.

**Apparel Mode** This drop-down menu offers different modes for using the apparel method feature. The options are disabled, enabled, auto-off, and lock on.

When **Enabled** is selected, an apparel mode check box will be visible on the home screen.

When **Disabled** is selected, the check box will not be visible on the home screen.

When **Auto-Off** is selected, the operator will need to manually select the check box for each apparel measurement.

When **Lock-On** is selected, the check box will always be checked and the Cubiscan 225-HS will take measurements in apparel mode until the mode option is changed.

**Scale** This drop-down menu is where you can select the scale model you are using in coordination with the Cubiscan 225-HS. The models which the Cubiscan 225-HS supports are listed below.

FW-150  
FB Ultegra USB  
MyWeigh HD150  
FB22250 Auto  
MT IND-231  
Ishida IWX-D  
Ishida IGX  
CAS PB-150  
DWP-440

**Belt Speed** You can adjust the belt speed by using the up or down arrows.



Figure 21  
Configure Units menu

## Units

From this screen you can select **units** of measure. You can change the dimensional units to **in** (inch), **cm** (centimeter), or **mm** (millimeter) and the weight units to **lb** (pound) or **kg** (kilogram).

You can also give your Cubiscan 225-HS a unique **machine ID**.

This screen is also where you can change the **dimensional factor** values. Refer to the table below for the default values.

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)



Figure 22  
Configure Ethernet menu

## Ethernet

This screen displays Ethernet information and options.

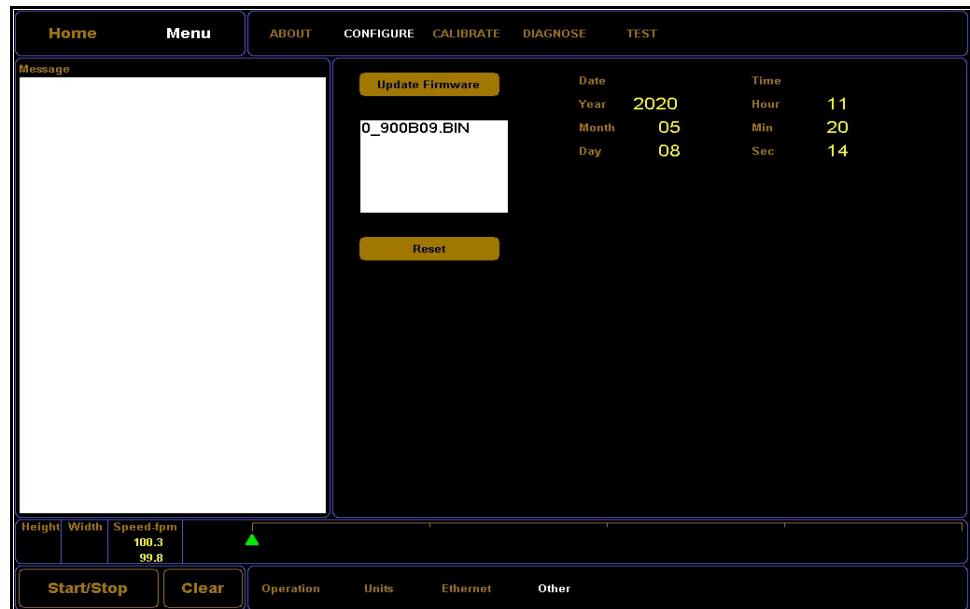


Figure 23  
Configure Other menu

## Other

On this screen you can set the **date** and **time**, **update firmware**, or **reset** the system.

## Special Features

---

The following options are special features that the Cubiscan 225-HS offers.

### Filter

The filter mode measures only the largest item (items cannot be touching), if multiple items are found in the measurement field. Items that have been excluded from the measurement process are displayed in red. The item that was measured is displayed in yellow (see Figure 24 below).

To turn filter mode off and on, go to the **Menu > Configure > Operation** screen (see Figure 24).



Figure 24  
*Filter mode*

## Smallest box

Smallest box mode is the default mode. This mode determines the smallest bounding box possible, and 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.

To turn smallest box mode off and on, go to the **Menu > Configure > Operation** screen.

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

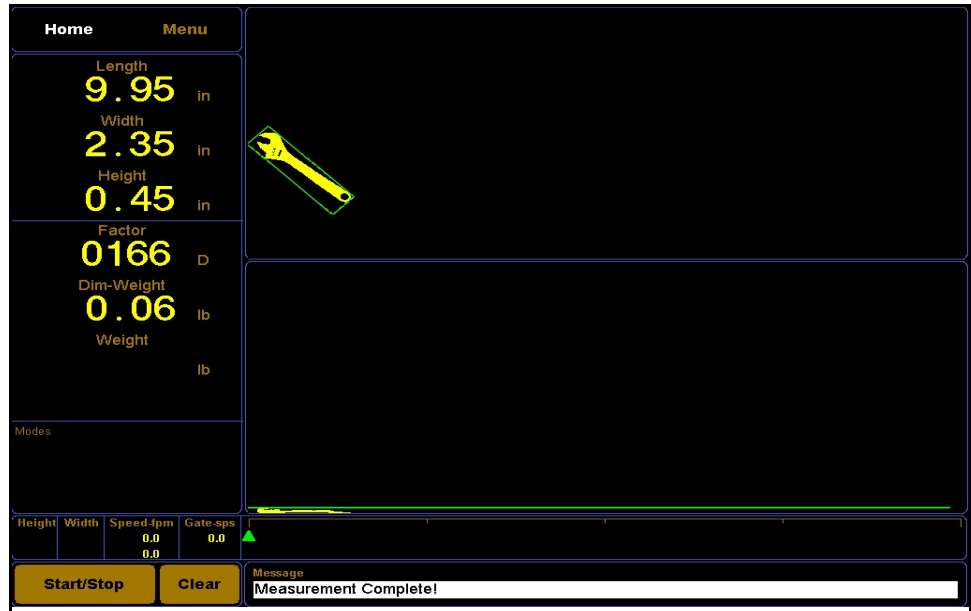


Figure 25  
Smallest box mode on



Figure 26  
Smallest box mode off



## Tray

The Tray mode is an optional feature that requires a standard clear acrylic tray (24 in x 18 in) that can be supplied by Cubiscan. This tray enables the Cubiscan 225-HS to measure very small items that would normally fall into the gap between conveyor belts.

When the Cubiscan 225-HS is in Tray mode, it automatically deducts the dimensions of the tray and displays the actual measurements of the small item that was measured.

The item that is being measured cannot exceed the tray's width or length.



*Be sure that the handles of the tray go through the gate correctly. The tray should be placed so that one handle goes through the gate at a time. If both handles go through the gate simultaneously, the item in the tray may not be measured accurately.*

To measure an item using the Tray mode, simply check the box labeled **Tray** on the **Home** screen in the modes area. You can also access this mode by tapping **Menu > Configure > Operation**, and checking the box on that screen.

Next, complete the following steps.

39. Tap **[Start/Stop]**.
40. Carefully place the tray on the conveyor belt.
41. Quickly and carefully place the item that is to be measured roughly in the center of the tray.

Your measurement results will be displayed on the touchscreen.

# CHAPTER 5

## CALIBRATION

---

This chapter provides instructions for calibrating the Cubiscan 225-HS gate and touchscreen. The Cubiscan 225-HS is calibrated at the factory; however, recalibration may occasionally be required.

Calibrate the gate if you suspect that the Cubiscan 225-HS is not measuring accurately, or if the calibration cube is not being measured correctly.

Calibrate the touchscreen if you have trouble making selections on the screen.

## Gate calibration

---



The gate is calibrated automatically, and the following steps describe how to make necessary adjustments.

### Height

Only adjust the height offset if your height measurements are inaccurate.

1. Tap **Menu** at the home screen.
2. Tap **[Calibrate]**.

- Tap **[Gate]**. The gate calibration screen is displayed.



Figure 27  
Gate calibration

- Place the 12-inch high calibration cube vertically on the conveyor to be measured.
- Tap **[Calibrate Height]**.

### Length

Only calibrate the length if your length measurements are inaccurate.

- On the Menu > Calibrate > Gate page, tap on the length value to adjust it to 60.00.
- Start the conveyor. Tap **[Calibrate Length]**.
- Measure a 60-inch long cube three or more times.

4. Tap [Calibrate Length].

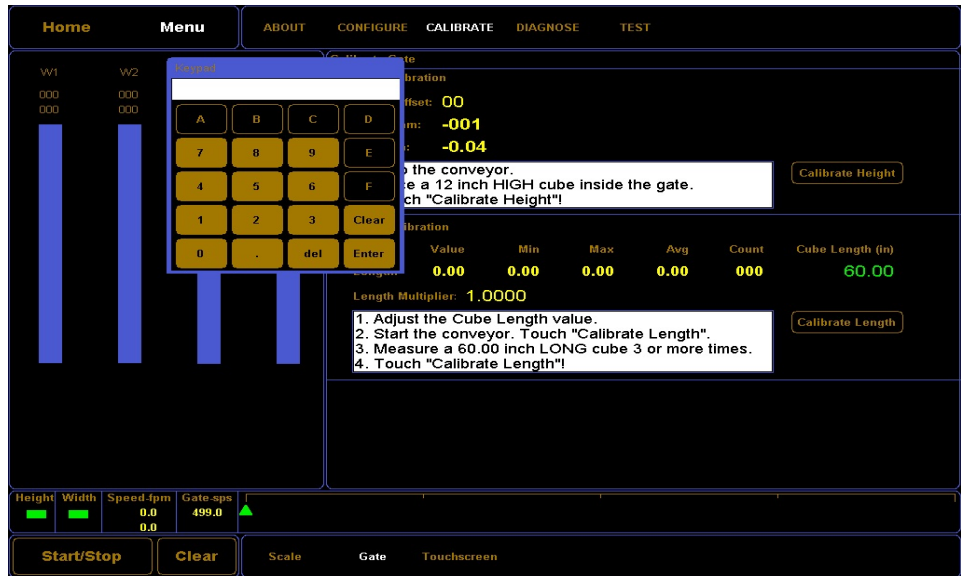


Figure 28  
Calibrate Length

## Touchscreen calibration

Take the following steps to calibrate the touchscreen.

1. Tap **Menu** at the main screen. The menu buttons are displayed.

2. Tap **Calibrate**. The calibration menu is displayed.



Figure 29  
Calibration menu

3. Tap **Touchscreen**. The touchscreen calibration screen is displayed.



Figure 30  
Touchscreen calibration

4. Touch the center of each **x** on the screen until the **x** turns green. There are five calibration points on the screen.

# CHAPTER 6

## MAINTENANCE

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This chapter provides information on the maintenance and care of the Cubiscan 225-HS. Routine inspection and careful handling will help identify problems before they become serious and may prevent service calls or repairs.

### Belt tension

---

To check or adjust your belt tension, complete the following steps.

1. Make sure that the Cubiscan 225-HS is turned off.
2. Remove the cover guards shown below by loosening the six Phillips screws on each cover panel and lifting the panel up and off.

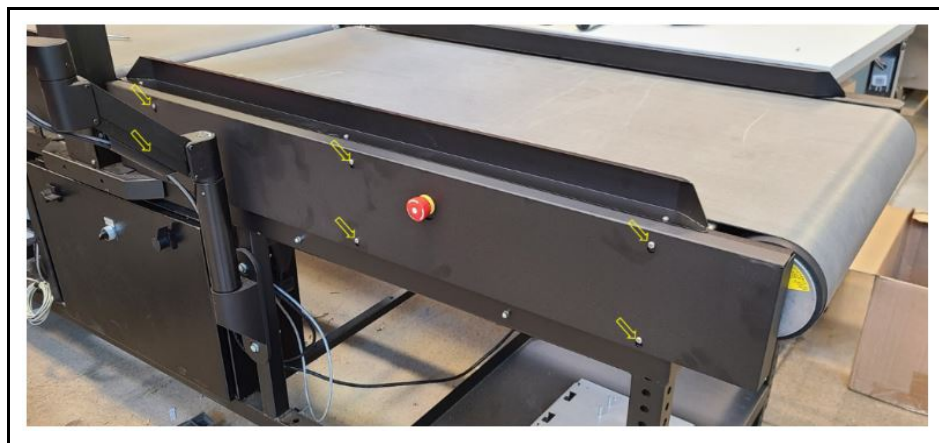


Figure 31  
*Cover guards*

3. Measure from the edge of the motor mounting bracket to the sliding bracket as shown below.



Figure 32  
*Tension measurement*

4. The measurement should be approximately 3/8". If slightly different tension is needed due to belt stretch, it is okay to adjust the belt as needed being careful not to over-tighten it. The belt should be tensioned to the least amount of tension without the belt slipping on the drive motor.
5. This process will need to be repeated on the other side of the conveyor. The tension should be the same on both sides of the conveyor. This will prolong the life of your belt and bearings.

## Cleaning the sensors

---

The gate 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 wipe the surface with a dry, microfiber cloth.


## Cleaning the sensor guard

---

There is a plastic sensor guard located over the gate's bottom LED sensor strip. This guard is in place to prevent objects from falling onto the sensor strip and damaging it. If objects, debris, or dust are on this guard, it may cause interference in dimensioning objects.

To clean this guard, first make sure that the Cubiscan 225-HS is turned off. Carefully remove the guard by wiggling it free. You can then wipe it clean with a soft, dry cloth. Carefully replace the guard and make sure it is in place before starting the Cubiscan 225-HS.

If you do not want to remove the guard, use a feather duster to clean it.

**NOTE**  *Do not operate the Cubiscan 225-HS without the sensor guard in place. When the sensor guard is not in place debris and dust fall directly onto the bottom sensor strip and are much more difficult to remove.*



# CHAPTER 7

## TROUBLESHOOTING

---

This chapter provides assistance in identifying and solving common problems with the Cubiscan 225-HS. If you encounter problems not covered in this chapter, contact Cubiscan Service and Support at 801. 451.7000 or your system integrator for assistance.

### No response when you turn power on

---



If there is no response when you power on the Cubiscan 225-HS, do the following:

1. Verify that the AC power source is working properly.
2. Was the circuit broken? Check the circuit breaker located near the OFF/ON switch. Push the **10** button back in if it has popped out.

Contact Cubiscan if you require additional help.

### Dimension readings are not accurate

---



If you suspect that the Cubiscan 225-HS dimension readings are inaccurate, do the following:

1. Check the gate sensors and the sensor guard for dust or debris. Clean the sensors and sensor guard with a dry, microfiber cloth.
2. Verify that the image is representative of the measured item. If not, check gate diagnostics of the Cubiscan 225-HS. Refer to "Diagnostics" on page 42 for further information.
3. Is there a correct amount of tension on the belts? Refer to "Belt tension" on page 38 for further information.

## Computer error messages

---



The following error messages generated by Qbit indicate a communications problem between the Cubiscan 225-HS and the computer.

**No  
Communications  
with Cubiscan  
225-HS**

This message indicates that no communication is taking place between the computer and the Cubiscan 225-HS.

**Transmission  
Error**

This message indicates that erroneous or garbled data is being sent from the Cubiscan 225-HS.

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

1. Is the Cubiscan 225-HS turned on and securely connected to power?
2. Is the serial cable or Ethernet cable connected to both the Cubiscan 225-HS 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 225-HS properly configured to the TCP/IP communication? (Qbit software can be used to configure the Cubiscan 225-HS.)
6. Is there a problem with the Cubiscan 225-HS? Perform the Status function in Qbit to check the status of the Cubiscan 225-HS.
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.

## Diagnostics

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This section describes the diagnostic capabilities of the Cubiscan 225-HS.

Tap **Menu** > **Diagnose** at the home screen. The scale diagnostics screen is displayed (See Figure 33). Tap the additional sub-menus at the bottom of the screen to view diagnostic information for the gate, touchscreen, and encoder.

## Scale

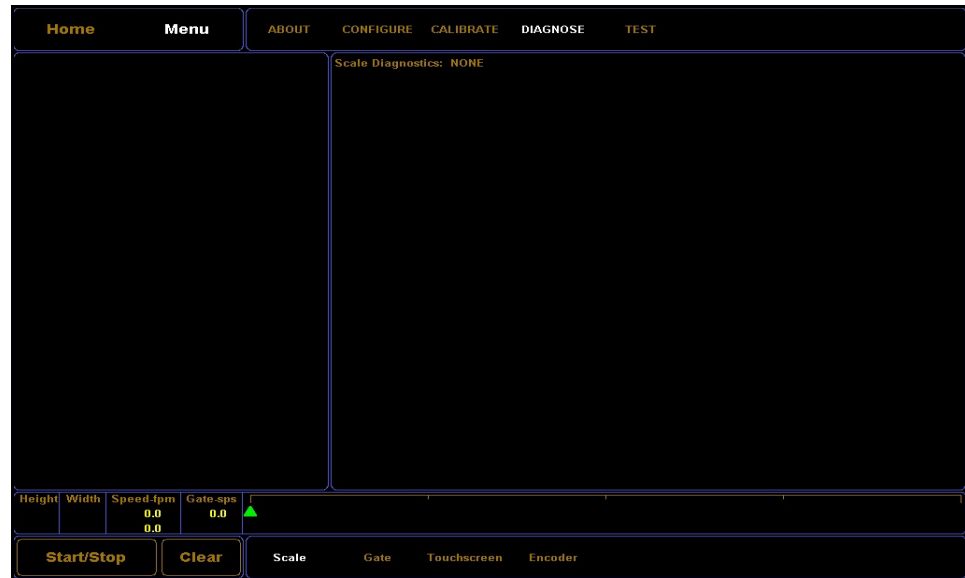


Figure 33  
Scale diagnostics screen

# Gate



Figure 34  
Diagnose gate screen 1 of 3



Figure 35  
Diagnose gate screen 2 of 3



Figure 36  
Diagnose gate screen 3 of 3

# Touchscreen



Figure 37  
Diagnose touchscreen screen

# Encoder



Figure 38  
Diagnose encoder screen

# APPENDIX A

## PARTS LIST

Following is a list of parts that can be purchased for the Cubiscan 225-HS as spare parts or if replacement is necessary.

Part No.	Description	Quantity
14262	On/Off Switch Assembly	1
13210	PCB Assembly, Mother Board	1
14350	Relays (TE Connectivity, KUP-11d15-5)	2
13218	AC/DC Power Supply Single-Out 12 V 8.33A 150 W	1
13764	DC Motor Controller	1
13866	Window, Dust Cover	1
14251	Roller 1.9 OD x 33L 7/16 HEX	1
14253	Roller 2.5 OD x 26L 11/16 HEX	1
14254	Roller 4 OD x 27L 11/16 HEX Flat	1
14255	Drive Roller 4.5 OD x 27L	1
14285	Bearing, 0.75ID Flange Mount	2
14244	Conveyor Belt 24W x 132L	2
14283	Timing Belt, 1" W x 33" L H Series	2
14257	L Encoder TR1 Mounting Bracket	1
14258	Trutrac-TR1 Encoder Assembly	1
14210	Nose Roller Assembly	2
14248	Bision 480DC Parallel Shaft DC Motor	1
10273	Calibration Cube, 12" x 5" x 3.6", Black	1
13411	USB to Ethernet Adapter	1
13413	Ethernet Cable, 10 ft	1
14510	Acrylic Tray (24" x 18") (Optional)	1
14437	User Manual (PDF)	1