CUBISCAN® 75-C

Operations and technical manual

Version 1.1

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Cubing and weighing systems

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CUBISCAN®

Cubiscan 75-C operations and technical manual

CAUTION

The Cubiscan 75-C should only be serviced by qualified personnel.
Observe precautions for handling electrostatic sensitive devices when setting up or operating the Cubiscan 75-C.

WARNING

Disconnect all power to the Cubiscan 75-C before servicing or making any connections.

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4. Not been operated or maintained in accordance with Seller's instructions.
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6. Had serial numbers altered, defaced or removed.
7. Been operated beyond capacity.

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What's new in version 1.1?

– Updated bolting the Cubiscan platform in place from recommended to required

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 August 1, 2018.

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CHAPTER 1
PRODUCT DESCRIPTION

The Cubiscan 75-C is a static, overhead cubing system that uses innovative sensing technology to measure objects. The simple overhead design grants access from almost any direction. There are no moving parts—allowing for effortless setup and use.

Any scale with a TCP/IP or serial output can be used with the Cubiscan 75-C, creating a complete cubing and weighing system. Measurements are quickly taken by placing an object on the scale (if a scale is being used), scanning a barcode, or tapping the Measure button—resulting in fast, easy, and accurate data gathering.

The Cubiscan 75-C can be used for storage space planning, creating shipment manifests, and obtaining detailed dimensioning data. It has an integrated touchscreen that shows a color-depth map of the measured object or a live view of the measurement area, as well as the measurement results. 3D cameras measure to a precise increment of 0.2 inches.

Each unit has an Ethernet and a serial port, enabling the Cubiscan 75-C to communicate with a computer. Proprietary Qbit software is used to interface with the Cubiscan 75-C, allowing for menu-driven operator control, data storage and transfer, as well as diagnostics. Alternatively, documented communications protocol can be used to create custom software.

The Cubiscan 75-C uses powerful sensing technologies to create a flexible and economical solution for today's most demanding cubing applications.

Figure 1
Cubiscan 75-C

Specifications

Power requirements

100-240 VAC, 50-60 Hz

Environmental

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

Humidity: 5 to 95% non-condensing

Dimensioning sensor

3D camera

Dimensioning capacities

The Cubiscan 75-C has a pyramid-shaped measurement area—a long, short box is more likely to fit in the measurement area than a compact, tall box. The figure below indicates the measurement area. See the tables below for specific maximums and minimums.

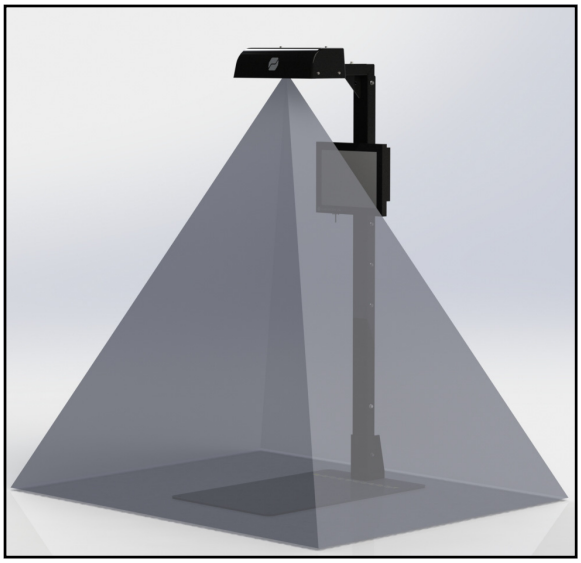


Figure 2
Measurement area

Dimensional ranges for Non-LFT

Minimum length, width, height: 4.0 x 4.0 x 2.0 in (10.0 x 10.0 x 5.0 cm)

Height	Max length	Max width
2.0 in (5.0 cm)	55.0 in (140.0 cm)	31.0 in (80.0 cm)
12.0 in (30.0 cm)	43.0 in (110.0 cm)	27.0 in (70.0 cm)
18.0 in (45.0 cm)	37.0 in (94.0 cm)	25.0 in (63.0 cm)
24.0 in (60.0 cm)	30.0 in (75.0 cm)	22.0 in (55.0 cm)
36.0 in (90.0 cm)	18.0 in (45.0 cm)	13.0 in (33.0 cm)

Measurement increment: 0.2 in (0.5 cm)

Object type: cuboidal and known objects

Dimensional ranges for Cuboidal Shapes-USA (LFT, NTEP)

Minimum length, width, height: 4.0 x 4.0 x 2.4 in (10.0 x 10.0 x 6.0 cm)

Height	Max length	Max width
2.4 in (5.0 cm)	55.5 in (140.0 cm)	31.5 in (80.0 cm)
12.0 in (30.0 cm)	43.0 in (110.0 cm)	27.0 in (70.0 cm)
18.0 in (45.0 cm)	37.0 in (94.0 cm)	25.0 in (63.0 cm)
24.0 in (60.0 cm)	30.0 in (75.0 cm)	22.0 in (55.0 cm)
36.5 in (95.0 cm)	16.0 in (41.0 cm)	13.0 in (33.0 cm)

Measurement increment: 0.2 in (0.5 cm)

Dimensional ranges for Known Shapes-USA (LFT, NTEP)

Minimum length, width, height: 6.0 x 6.0 x 6.0 in (12.0 x 12.0 x 12.0 cm)

Height	Max length	Max width
6.0 in (12.0 cm)	50.0 in (127.0 cm)	30.0 in (76.0 cm)
12.0 in (30.0 cm)	43.0 in (110.0 cm)	27.0 in (70.0 cm)
18.0 in (45.0 cm)	37.0 in (94.0 cm)	25.0 in (63.0 cm)
24.0 in (60.0 cm)	30.0 in (75.0 cm)	22.0 in (55.0 cm)
36.5 in (95.0 cm)	16.0 in (41.0 cm)	13.0 in (33.0 cm)

Measurement increment: 0.5 in (1.0 cm)

Other

Measurement time

Platform or scale trigger: approximately 2 seconds

Manual or barcode trigger: < 1 second

Object colors: Opaque

Physical

Length: 29 in (74 cm)

Width: 18 in (46 cm)

Height: 58 in (148 cm)

Weight: 73 lb (33 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

Cubiscan's QBIT™ software can be used to interface with the Cubiscan 75-C.

Display:
Integrated touchscreen displays L, W, H, Dim Wgt, unit of measure, color-depth image, and status.

Outputs:
Ethernet (1), Serial (2)

CHAPTER 2
SETUP

This chapter provides instructions for assembling and setting up the Cubiscan 75-C. Perform the steps to set up the Cubiscan 75-C in the following order.

Unpacking

1. Carefully remove the Cubiscan 75-C from the crate, and place the Cubiscan 75-C on a solid, stable surface for assembly. See "Placement" on page 7.

2. Remove the cables and accessories.

Examine the container and the Cubiscan 75-C carefully for any damage. If, after unpacking, you discover any damage to the Cubiscan 75-C, contact the carrier immediately.

If any of the components or accessories are missing or defective, contact Cubiscan or your system integrator.

Placement

The Cubiscan 75-C 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 75-C to extremes in temperature or humidity. Locate the Cubiscan 75-C away from open freight doors.
- Protect the Cubiscan 75-C from static electricity, especially the display.
- The Cubiscan 75-C is typically set on a table or similar working surface so that objects are easier to place in the measurement area. It is recommended that you bolt the Cubiscan down, bolts are provided.
- Place the Cubiscan 75-C on a flat, sturdy surface as free from vibration as possible. You must bolt the Cubiscan 75-C platform in place using the bolts provided in the shipping container. Bolting the Cubiscan 75-C in place will prevent it from falling or being knocked over and damaged.
- Place the computer as close to the Cubiscan 75-C as possible. The operator may need to use the keyboard and mouse while dimensioning objects.
- Orient the Cubiscan 75-C so that the display faces the operator.
- Place the Cubiscan 75-C away from direct sunlight or bright lights, such as halogen spotlights.

Assembling the Cubiscan 75-C

The Cubiscan 75-C is almost completely assembled when shipped. You only need to remove the shipping materials, attach the post to the base platform, and bolt the platform down.

Removing the shipping material

1. Remove the bubble wrap from the Cubiscan 75-C stand.
2. Remove the bubble wrap from the Cubiscan 75-C base platform.

Attaching the post to the platform

1. Insert and secure the bottom post to the platform as shown below.

Figure 3
Attaching the base

NOTE *The stand must be attached to the platform for the height calibration to work properly. The Cubiscan 75-C will not work if it is mounted any other way.*

2. With two people, connect the wires found in the bottom and top posts.

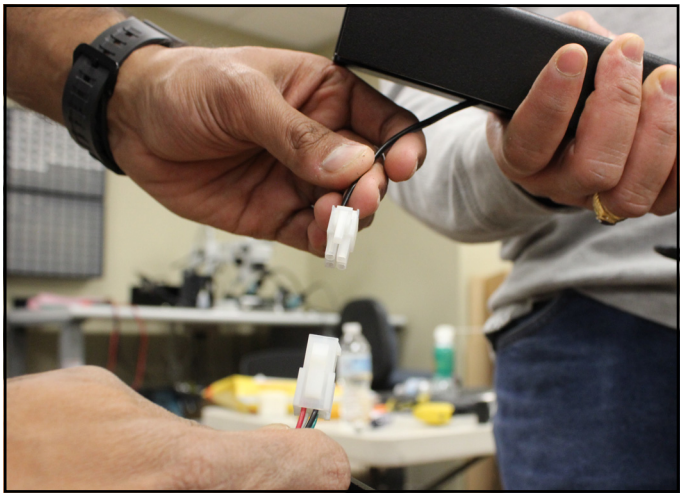


Figure 4
Connect wires

3. Slide the top post into place and secure it using the two bolts shown below. Make sure no wires are pinched during this process.

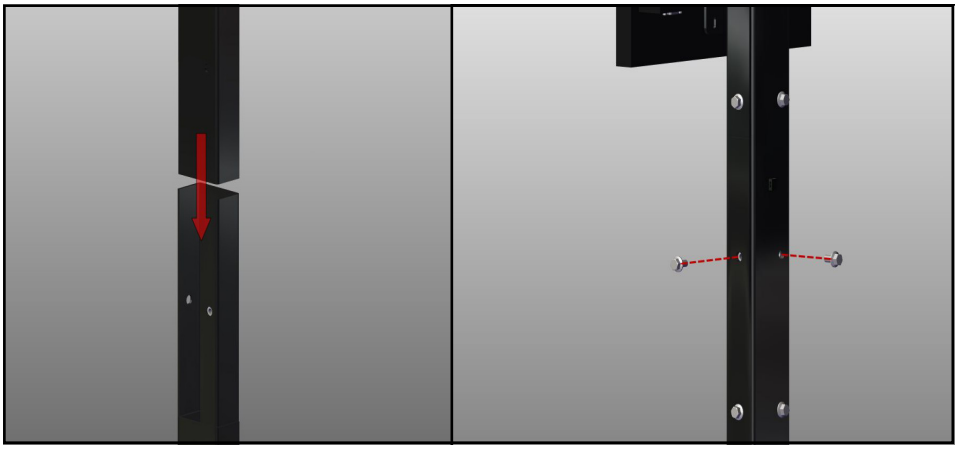


Figure 5
Attaching the top post

Bolting the platform in place

Bolting the platform in place is required to prevent the Cubiscan 75-C from falling or being knocked over.

1. Place the Cubiscan 75-C where you will be using it. Typically the Cubiscan 75-C is placed on a table or similar surface.

2. Mark where you will be drilling the six holes. The image below shows where the six holes in the Cubiscan 75-C platform are located.

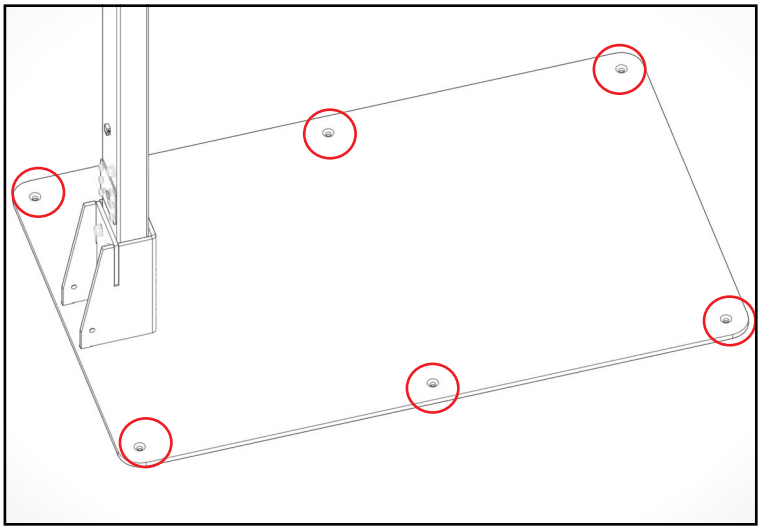


Figure 6
Cubiscan 75-C platform

3. Move the Cubiscan 75-C to the side and drill the holes.

4. Move the Cubiscan 75-C back into place and secure it using the hardware provided. The washer will go flush against the underside of the table (or the surface to which you are bolting the Cubiscan 75-C), followed by the lock washer and nut.

Connecting power

Take the following steps to connect power to the Cubiscan 75-C.

1. Locate the two power supply cables and connect them.

2. Connect the power cable to the power connection, located at the base of the post. Make sure the arrows on the cable are facing up when you plug the cable in so that no pins are bent.

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

4. Use the power button located on the top left corner of the touchscreen to turn the Cubiscan 75-C on. Allow the Cubiscan a few minutes to power up the first time you turn it on.

Turning on the Cubiscan 75-C

Turn the Cubiscan 75-C on using the power button located on the top left edge of the touchscreen.

Turn the Cubiscan off by going to **CONFIGURE > Exit**. Tap the **Shutdown** button.

Connecting to a computer

To connect the Cubiscan 75-C to a computer, you can use an Ethernet cable or a serial cable. Both methods are described below.

Communicating via Ethernet

Complete the following steps to communicate with the Cubiscan using Ethernet.

If you have an available Ethernet port on your computer, you can use the Ethernet cable without using the USB to Ethernet adapter if you prefer.

Installing and configuring the Ethernet driver

1. Plug the white TRENDnet USB to Ethernet adapter into the computer. The driver should be automatically installed. If the driver is not installed successfully, refer to TRENDnet support.

2. Plug the Ethernet cable into the Ethernet port located on the underside of the Cubiscan 75-C touchscreen.

3. Route the Ethernet cable down the back of the Cubiscan post, using the zip ties provided to secure the cable against the post. Make sure that the cable is not in the measurement area. The measurement area includes the Cubiscan platform and extends 18 inches in each direction around the platform.

4. Plug the other end of the cable into the TRENDnet adapter.

Configuring Ethernet network settings

Once the driver is installed you need to 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.

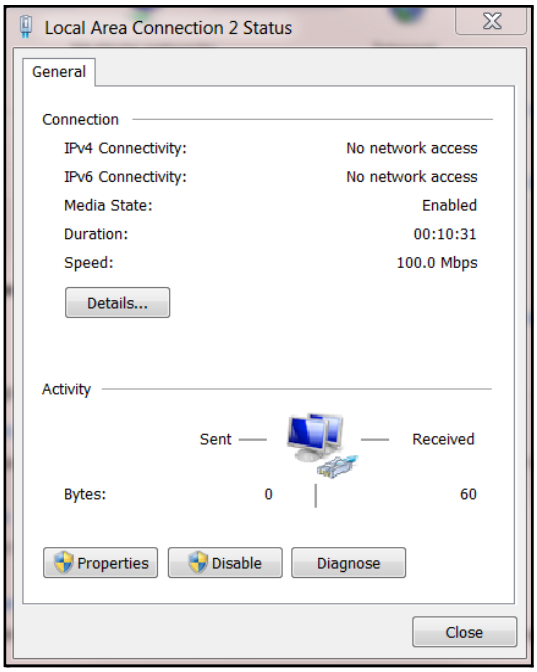


Figure 7
Status window

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

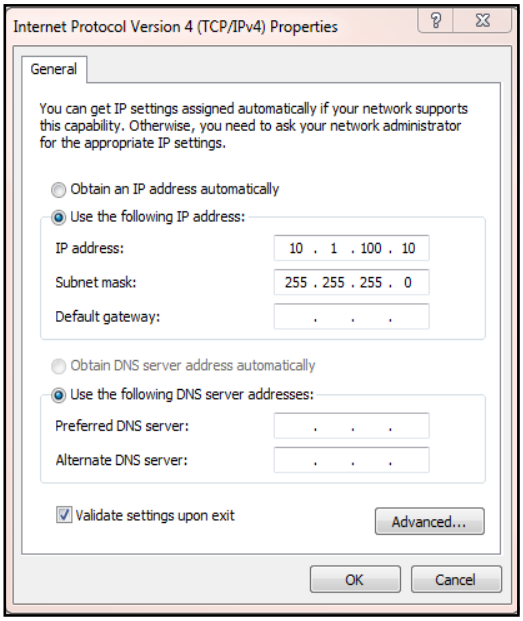


Figure 8
General properties window

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 75-C.

NOTE *If an open Ethernet port is available, it may be used instead of using the USB to Ethernet adapter.*

Communicating via serial

1. Plug the serial cable into the serial port located on the underside of the Cubiscan 75-C touchscreen.

2. Route the serial cable down the back of the Cubiscan post, using the zip ties provided to secure the cable against the post. Make sure that the cable is not in the measurement area. The measurement area includes the Cubiscan platform and extends 18 inches in each direction around the platform.

3. Connect the serial cable to a free port on your computer. Use an adapter if necessary.

4. Tighten both screws at each end of the cable. It is important that the cable be secure.

Installing Qbit

A flash drive is available containing the Qbit software application, which can be used to operate the Cubiscan 75-C.

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 website at www.cubiscan.com.

Height calibration

You must complete the Cubiscan 75-C height calibration procedure before dimensioning. Complete the following steps to calibrate the height.

1. Turn the Cubiscan 75-C on if you have not already.

2. On the touchscreen, go to **CONFIGURE > Cali/Zero/Tare**.

3. Place the 12'' calibration cube provided on the Cubiscan platform. If you are using a scale, place the scale on the platform and then place the cube on top of the scale. Nothing except the calibration cube (and a scale if you are using one) should be in the measurement area.

4. Tap the **Height-Calibration** button and leave the measurement area as quickly as you can (the measurement area includes the platform and extends about 18 inches from the platform on each side).

5. The height calibration value will be shown on the screen. This value will ensure that height measurements are correct.

   If the measurement area is disturbed during this process, or an object (besides the calibration cube or a scale) is in the measurement area, a red value of **0.0** or an error message will be shown. If this happens, go through the height calibration process again.

   If you notice that your height measurements are outside tolerance (+/- 0.2 inches), go through the height calibration procedure again, especially if your Cubiscan has experienced temperature change, movement, or stress.

   If you ever begin using a scale with the Cubiscan, repeat the height calibration procedure.

Measurement trigger

Select your preferred measurement trigger. The default is the platform trigger. The measurement trigger options available are listed below.

– Object detection trigger
  The object detection trigger automatically prompts a measurement when a stable object is detected on the Cubiscan 75-C platform.

– Scale trigger
  The scale trigger prompts a measurement when an object is placed on a 3rd party scale (when the scale is connected to Qbit-Xfer).
– Barcode trigger
  The barcode trigger prompts a measurement when a barcode is scanned (using a scanner that is connected to Qbit-Xfer).
– Manual Measure button
  The manual measure button prompts a measurement when this button is selected. This button is located on the main window of Qbit-Xfer.
– Measure button
  Tap this button to initiate a measurement. This button is located on the home screen of the Cubiscan 75-C.

To select your trigger, see "Select measurement triggers" on page 28.

Setup checklist

Before using the Cubiscan 75-C for the first time, verify the following:

1. Have the Cubiscan 75-C and the computer been placed in the proper operating environment? (page 7)
2. Has the Cubiscan 75-C been fully assembled? (page 7)
3. Has the Cubiscan platform been bolted in place? (page 9)
4. Has all shipping material been removed? (page 7)
5. Has the AC power cable been connected correctly? (page 10)
6. Has the Cubiscan 75-C been connected to the computer? (page 10)
7. Has the Qbit software been installed on your computer? (Refer to the *Qbit User Guide* for information.)
8. Have you completed the height calibration procedure? (page 14)
9. Have you selected your preferred measurement trigger? (page 14)

CHAPTER 3
OPERATION

This chapter provides instructions for operating the Cubiscan 75-C.

Cubiscan 75-C display

The Cubiscan 75-C screen (shown below) displays measurement results and dim weight results. The default display is a color-depth image that uses a color scale to indicate the height of the object being measured. The other display window option is a live view mode of the measurement area.

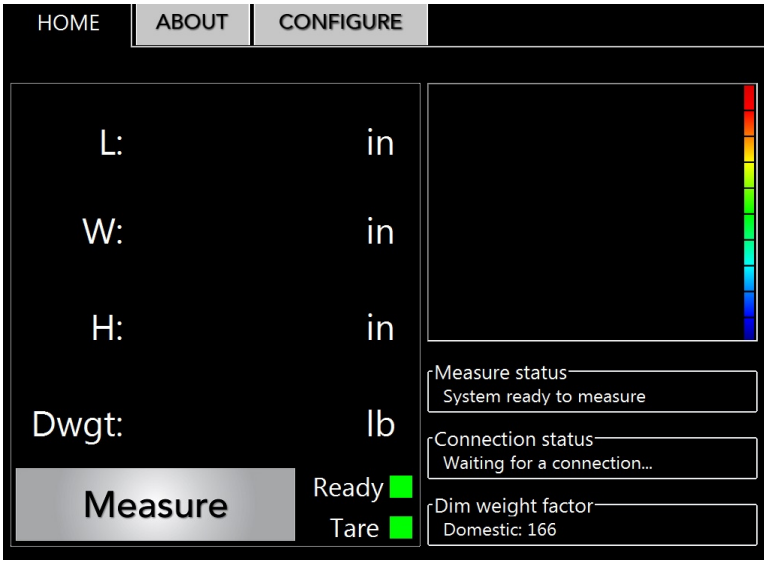


Figure 9
Home screen (color-depth image)

Figure 10
Home screen (live view mode)

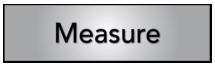
To configure the Cubiscan 75-C display, see "CONFIGURATION" on page 21.

Length: This field displays the length of the measurement in inches (in) or centimeters (cm) as selected. To configure the units, see "Units" on page 23.

Width: This field displays the width of the measurement in inches (in) or centimeters (cm) as selected. To configure the units, see "Units" on page 23.

Height: This field displays the height of the measurement in inches (in) or centimeters (cm) as selected. To configure the units, see "Units" on page 23.

Dwgt: This field displays the dim weight result of the measurement in pounds (lb) or kilograms (kg) as selected. To configure the units, see "Units" on page 23. The dim weight depends on your selected dim weight factor.



Tap the measure button to initiate a measurement. After you tap this button, make sure you remove your hand from the measurement area quickly.

Device status This field displays the current status of the Cubiscan 75-C.

Connection status This field displays the current connection status of the Cubiscan 75-C.

Dim weight factor This field displays the currently selected dim weight factor. To configure the factor, see "Units" on page 23.

Ready (indicator) This indicates that the system is ready to take a measurement. For the indicator to light, the sensor must be working properly and the measurement area must be clear.

Tare (indicator) This indicates whether or not the system is taring height off automatically. In most cases, you would only want to use the tare function while using a tare blocks. For more information on taring, see "CALIBRATION/ZERO/TARE" on page 29.

Display window The default setting for this window is a color-depth image that uses a color scale to indicate the height of the object that was measured. The other display window option is a live view mode of the measurement area. To configure the display, see "Operation" on page 21.

Dimensioning objects

The Cubiscan 75-C can be used to measure opaque objects as small as 4 x 4 x 2 in (10 x 10 x 5 cm) (refer to "Specifications" on page 2 for specifications and size limitations). Below is a explanation of the shapes the Cubiscan 75-C can measure.

Cuboidal

Cuboidal objects are any shape that closely resembles a cube. The most commonly measured cuboidal objects are boxes.

Known shapes

Known shapes are generally geometric shapes. Triangles, rectangles, and spheres are examples of "known" geometric shapes that are easy for a Cubiscan 75-C to identify and measure. Packages that closely resemble geometric shapes can be measured by the Cubiscan, for example, packages, tubes, and, of course, boxes.

Objects are measured by the 3D camera located in the Cubiscan 75-C's head by placing the object in the measurement area.

You can select from multiple options to trigger a measurement. The options available are:

– Auto Platform Trigger
– Scale Trigger
– Barcode Trigger
– Manually measure by tapping the **[Measure]** button on the touchscreen
– Manually measure by clicking the **[Manual Measure]** button in Qbit-Xfer

For more information on selecting your measuring trigger, see "Select Measurement Triggers" on page 21.

To dimension objects using the Cubiscan 75-C, complete the following steps.

1. Make sure the measurement area is free of all objects.

2. Turn the Cubiscan 75-C on. The power button is located on the top left edge of the touchscreen. If this is the first time you are turning the system on, allow it a few minutes to boot up.

3. Place the object you are measuring in the measurement area.

4. Depending on the measurement trigger you selected, the Cubiscan 75-C will measure the object (you may need to prompt a measure event

using your selected measurement trigger). The measurement results will be displayed on the screen.

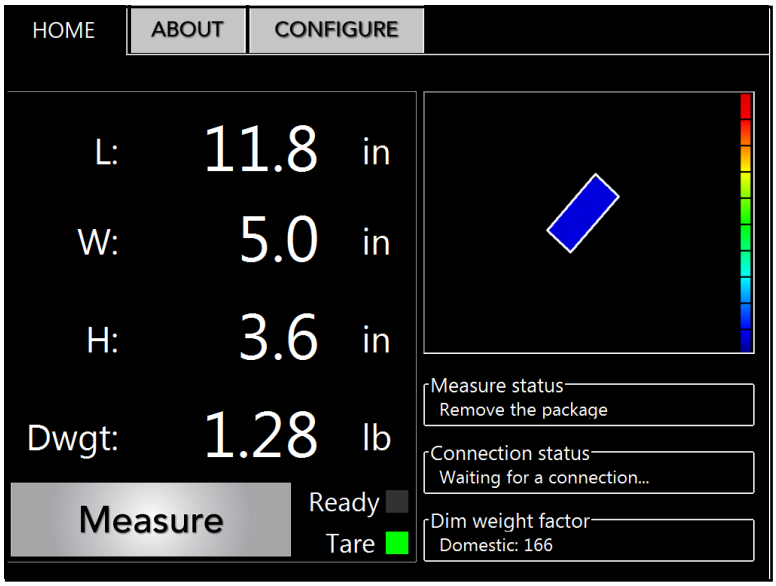


Figure 11
Measurement results

Using Qbit software

Refer to the *Qbit User Guide* for instructions on measuring 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.

CHAPTER 4
CONFIGURATION

This chapter provides instructions for configuring the Cubiscan 75-C. You can set up the length, width, and height measurements. This chapter also provides instructions for configuring the units, dimensional weight factor, and other settings.

If you are using Qbit software, see the *Qbit User Guide* located on your flash drive. The Qbit User Guide can also be downloaded from the Cubiscan website at www.cubiscan.com.

System configuration

The following options can be used to configure your Cubiscan 75-C. The options available on the CONFIGURE menu are Operation, Units, Ethernet, Cali/Zero/Tare, and Exit.

Operation

This section is about the CONFIGURE > Operation tab.

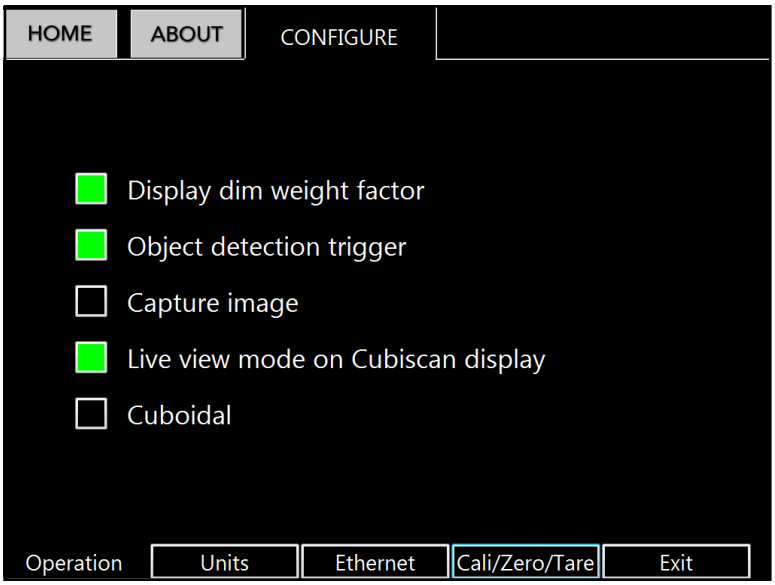


Figure 12
CONFIGURE Operation

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

Object detection trigger Enable this option to turn on automatic measuring. When the object detection trigger is on, the Cubiscan 75-C will try to measure as soon as any object is in the measurement area. When this option is disabled, a measure event must be triggered. For more information on measurement triggers, see "Select measurement triggers".

Capture image When this option is enabled, two still images are taken of the measurement and stored. One image shows the live-view, and the other image shows the color depth image. To retrieve these images, see your respective Qbit manual.

Live view mode on Cubiscan display Check this box if you want to switch to the live view mode on the Home screen.

Cuboidal only When this option is enabled the Cubiscan 75-C will not measure or even attempt to measure any object that does not closely resemble a box. This mode ensures better resolution when measuring boxes.

Units

This section is about the CONFIGURE > Units tab.

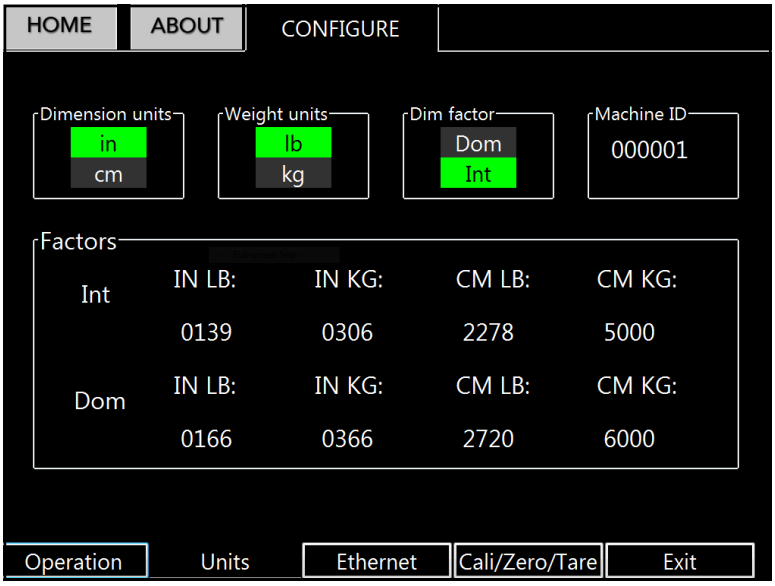


Figure 13
CONFIGURE Units

Dimension units In this field you can select inches or centimeters for your dimensional unit.

Weight units In this field you can select pounds or kilograms for your weight unit.

Dim factor In this field you can select a domestic or international dim factor.

Machine ID In this field you can enter an ID that is unique to this specific Cubiscan 75-C.

Factors In this table you can edit your international and domestic factors by tapping the number you would like to change.

Ethernet

This section is about the CONFIGURE > Ethernet tab.

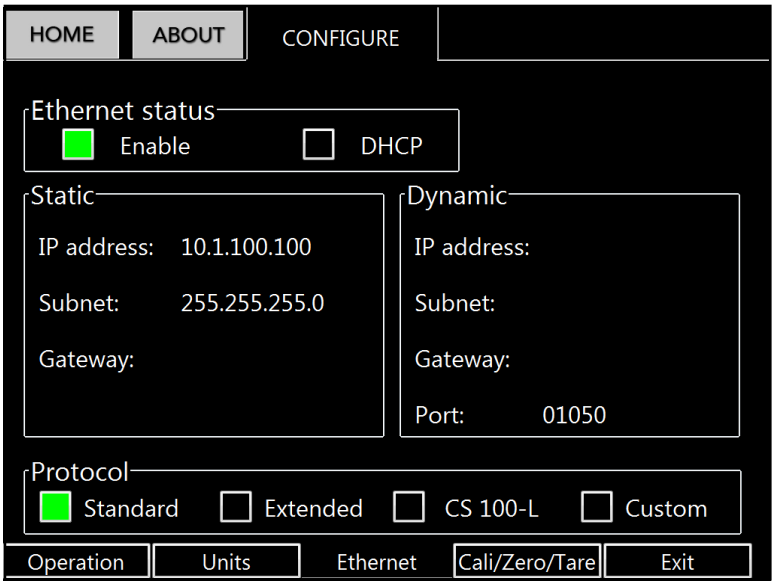


Figure 14
CONFIGURE Ethernet

Ethernet status

The Ethernet status field allows you to select your Ethernet settings.

Enable This checkbox enables or disables the Cubiscan 75-C's ability to communicate via Ethernet.

DHCP This checkbox enables or disables a DHCP connection.

Static

The Static field displays the static Ethernet information. These fields can be edited by tapping on them. You will need to restart the system if you edit these fields. To restart the system, see "Exit" on page 27. These fields will be blank if the DHCP Ethernet is being used.

IP address This field displays the static Ethernet address.

Subnet This field displays the Subnet address.

Gateway This field displays the gateway setting.

Refresh This button will refresh the static Ethernet information.

Dynamic

The Dynamic field displays the DHCP Ethernet information. This field is blank if the Static Ethernet is being used.

IP address This field displays the DHCP IP address.

Subnet This field displays the DHCP Subnet address.

Gateway This field displays the DHCP gateway setting.

Port This field displays the port number of 01050.

Protocol

The Protocol field displays the four different data packet formats that are available: Standard, Extended, CS 100-L, and Custom.

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

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

CS 100-L This option makes the data packet backwards compatible with the Cubiscan 100-L.

Custom This option allows the use of a custom communication protocol file that will be available with future updates.

Cali/Zero/Tare

This section is about the CONFIGURE > Cali/Zero/Tare tab.

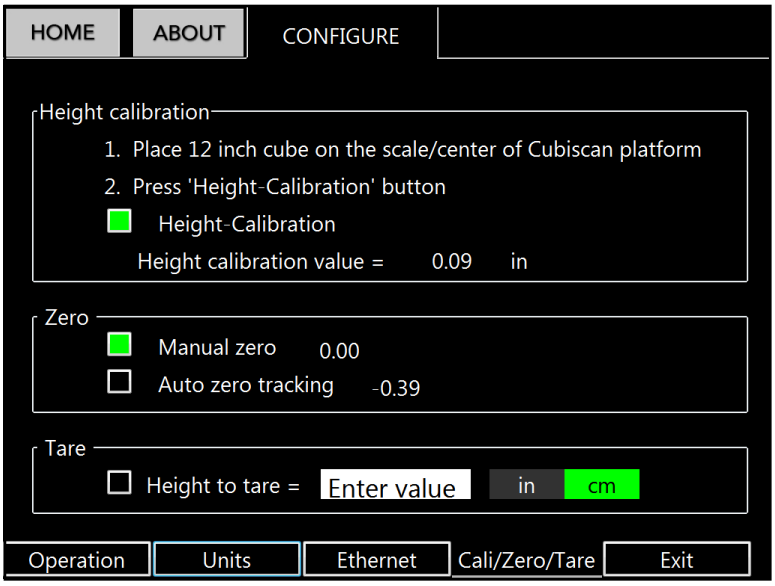


Figure 15
CONFIGURE Cali/Zero/Tare

Height calibration

The Height calibration section has instructions for calibrating during the setup process of the Cubiscan 75-C. Follow steps 1-2 to calibrate the height. The Height calibration value will be shown. For instructions on calibrating the height, see "Height calibration" on page 29.

Zero

The Zero section allows the Cubiscan 75-C to find a zero height, which allows the Cubiscan to measure the height accurately despite slight changes in temperature, light, or movement. For more information on the zeroing function, see "Zero" on page 30.

Manual zero The manual zero function must be activated by tapping the manual zero button. This finds a zero height. You should only use this feature if your height measurements are incorrect. If you do use manual zero, make sure nothing is in the measurement area (except a scale if you are using one).

Auto zero tracking The auto zero tracking function is a default function. When this feature is on, the Cubiscan will automatically find a zero height after every few measurements when it senses that the measurement area is clear.

Tare

The Tare section is for taring the height if you are using tare blocks with the Cubiscan 75-C. For more information on taring the height, see "Tare" on page 30.

Enter the height in inches or centimeters that you would like tared off the height. If you ever stop using tare blocks with the Cubiscan, remember to disable the tare button.

The home screen **Tare** indicator also shows whether the tare is being used.

Exit

This section is about the CONFIGURE > Exit tab.

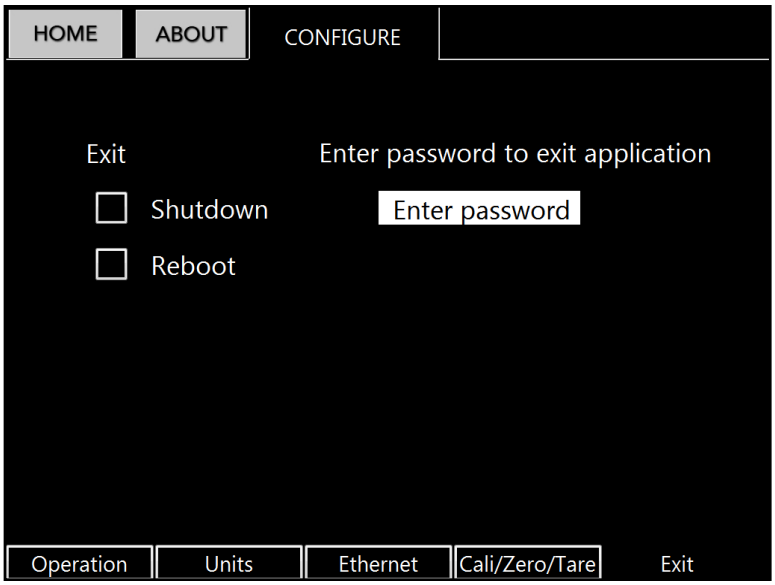


Figure 16
CONFIGURE Exit

Shutdown Tap this button to shutdown the Cubiscan 75-C. The Cubiscan 75-C can be turned back on with the power button located on the top left corner of the touchscreen.

Reboot Tap this button to reboot the Cubiscan 75-C. You may need to reboot the Cubiscan after changing certain settings.

Enter password to exit application Tap the Enter password button to enter the password and exit the application.

Select measurement triggers

The measurement trigger is what prompts the Cubiscan 75-C to take a measurement.

The following options are available for measurement triggers.

- Object detection trigger
  To turn this option on or off, enable or disable the **Object detection trigger** option located under the CONFIGURE > Operation tab on the Cubiscan 75-C touchscreen.
- Barcode trigger
  To turn this option on or off, enable or disable the **Barcode Trigger Enabled** box located under Tools > Options > Barcode Trigger in Qbit-Xfer. You can also configure the barcode trigger options. Make sure the auto platform trigger option is disabled under the CONFIGURE > Operation tab on the Cubiscan 75-C touchscreen.
- 3rd Party Scale Trigger
  To turn this option on or off, select or deselect the **3rd Party Scale Trigger** option located under Tools > Options > Weight Trigger > Mode in Qbit-Xfer. You can configure the 3rd party scale settings under the **3rd Party Scale** tab. Make sure the auto platform trigger option is disabled under the CONFIGURE > Operation tab on the Cubiscan 75-C touchscreen.
- **Manual Measure** button in Qbit-Xfer
- **Measure** button on Cubiscan 75-C home screen

CHAPTER 5
CALIBRATION/ZERO/TARE

This chapter provides instructions for using the height calibration, zero, or tare function on the Cubiscan 75-C. You must calibrate the height before operating the Cubiscan 75-C. The zero function is used to account for the slight difference in height from the sensor to the floor on each system.

If height measurements are consistently incorrect, you may want to calibrate the height again.

Height calibration

You must calibrate the Cubiscan 75-C height before dimensioning. Complete the following steps to calibrate the height.

1. Make sure nothing is in the Cubiscan measurement area, and that the area around the platform is clear of all objects (approximately 18 inches on all sides of the platform).

2. If you are using a scale, place it on the Cubiscan platform.

3. Place the 12'' calibration cube on the platform (or scale if you are using one).

4. Tap the **Height-Calibration** button located on the **CONFIGURE > Cali/Zero/Tare** tab and then quickly remove your hand from the measurement area.

5. Once the Cubiscan has determined the height calibration value, it will be displayed. Once this value is displayed, the height calibration is complete. If there is an error, a red 0.0 value or an error message will be displayed. Repeat the calibration process if either of these are shown.

   If you ever begin using a scale with the Cubiscan, repeat the height calibration procedure.

Zero

The Zero section allows the Cubiscan 75-C to find a zero height, which allows the Cubiscan to measure the height accurately despite slight changes in temperature, light, or movement.

Manual zero

The manual zero function must activated by tapping the manual zero button. This finds a zero height. You should only use this feature if your height measurements are incorrect. If you do use manual zero, make sure nothing is in the measurement area (except a scale if you are using one).

Auto zero tracking

The auto zero tracking function is a default function. When this feature is on, the Cubiscan will automatically find a zero height after every few measurements when it senses that the measurement area is clear.

Tare

Use the tare feature if you ever need to automatically subtract a set value from the height, for example if you use tare blocks to measure objects that may have been too short to measure for the Cubiscan to measure. Complete the following steps to set a tare value.

1. Enable the **Height to tare** button.
2. Enter the height that you would like tared off the height.
3. Select your unit of inches or centimeters.

   If you ever stop using tare blocks with the Cubiscan, remember to disable the tare button.

   The home screen **Tare** indicator also shows whether the tare is being used.

   Enabling the tare feature disables the zero and height calibration functions.

CHAPTER 6
MAINTENANCE

This chapter provides information on the care and maintenance of the Cubiscan 75-C. Routine maintenance and careful handling will help keep the Cubiscan 75-C in good operating condition and prevent service calls or repairs.

Precautions

The Cubiscan 75-C should not be subjected to extremes in temperature or humidity, nor should it be subjected to excessive vibration. For environmental recommendations, see "Specifications" on page 2

Cleaning the sensor covers

The sensor covers 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 sensor covers, use a clean microfiber cloth and gently wipe the covers located on the underside of the Cubiscan 75-C head. Do not get the covers wet. Do not use solvents or compressed air to clean the covers.

CHAPTER 7
TROUBLESHOOTING

This chapter provides assistance in identifying and solving common problems with the Cubiscan 75-C. If you encounter problems not covered in this chapter, or if a defect is suspected, contact your system integrator or call Cubiscan Technical Assistance at 801.451.7000 for assistance.

No response when you turn power on

If there is no response when you power on the Cubiscan 75-C, do the following:

1. Wait at least 30 seconds after powering on for signs that the system is booting up. The system may take a few minutes to boot, especially if this is the first time that it is being turned on.

2. The power cable consists of two cables that plug into each other, make sure these cables are undamaged and securely plugged into each other.

3. Make sure that both ends of the power cable are securely plugged in. Make sure the power cable is plugged into an active outlet or alternative power source.

4. Contact Cubiscan Service and Support at 801.451.7000 if you require additional help.

Dimension readings are not accurate

If you suspect that the Cubiscan 75-C dimension readings are inaccurate (varying by more than ± 0.2''), do the following:

1. Make sure that no other objects are interfering with measurements. The measurement area should be clear of all objects that are not being measured.

2. Make sure that the tare function is disabled, unless you are using tare blocks.

3. Sometimes black, shiny surfaces are difficult for the Cubiscan 75-C to dimension. Try measuring an object with a different surface to see if the surface is causing a problem.

4. Check the color-depth image to see what is being measured. Make sure that hands, arms, or other items are not included in measurements.

5. Direct sunlight can interfere with Cubiscan 75-C measurements. Move the Cubiscan 75-C if direct sunlight is in the measurement area.

6. Cycle the power.

7. Repeat the height calibration process, for more information, see "Height calibration" on page 29.

8. Try zeroing the Cubiscan manually, see "Zero" on page 30.

9. Contact Cubiscan at 801.451.7000 if you require additional help.

Sensor error

If the Cubiscan 75-C reports a sensor error, complete the following steps.

1. Cycle the power.

2. Locate the blue USB port on the underside of the touchscreen. The sensor cable should be plugged into the blue USB port. Unplug this cable and wait 30 seconds before plugging it back in.

3. If you are still receiving a sensor error, contact Cubiscan at 801.451.7000.

About

This section describes the About menu of the Cubiscan 75-C. The About menu contains useful information and records of the Cubiscan 75-C. The tabs available are Version, Config-Audit, Calib-Audit, Alibi.

Version

This section is about the ABOUT > Version tab.

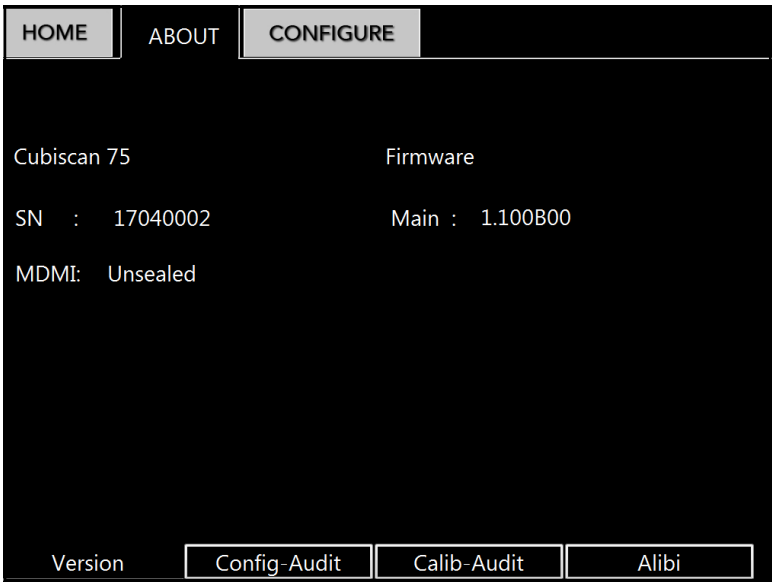


Figure 17
ABOUT Version

SN This field displays the serial number.

MDMI This field displays the MDMI status of the Cubiscan 75-C.

Main This field displays the version number of the main firmware.

Config-Audit

This section is about the ABOUT > Config-Audit tab.

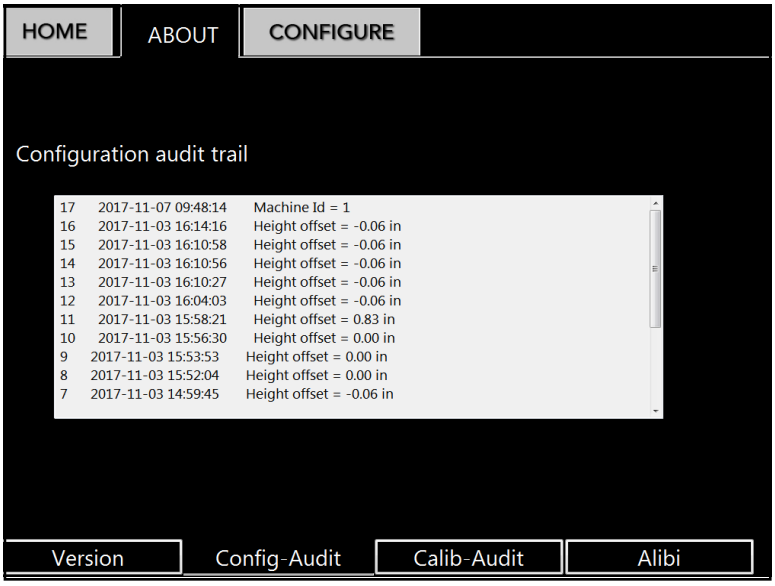


Figure 18
About Config-Audit

This tab displays the configuration audit trail. When configuration changes are made to the Cubiscan 75-C, the changes are recorded here. Changing dimension units, weight units, and dim factors are examples of the changes that are stored here.

Calib-Audit

This section is about the ABOUT > Calib-Audit tab.

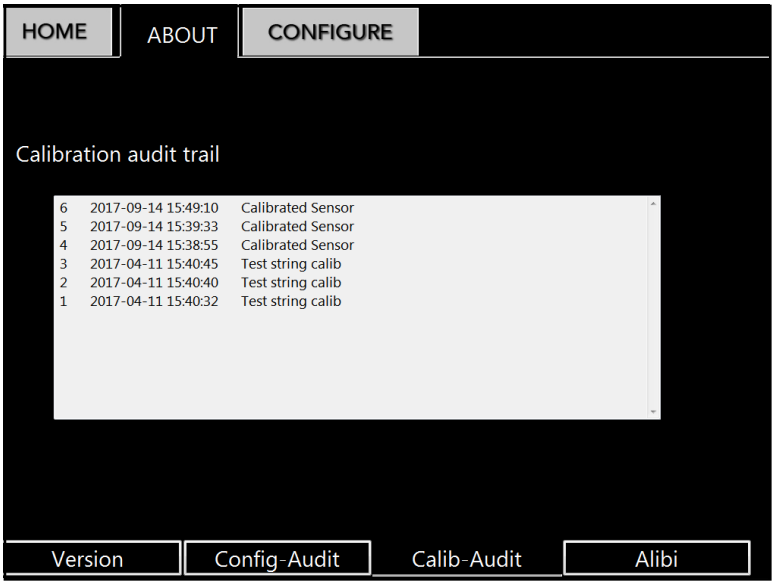


Figure 19
ABOUT Calib-Audit

This tab displays the calibration audit trail. You can view the calibration history of the sensor here.

Alibi

This section is about the ABOUT > Alibi tab.

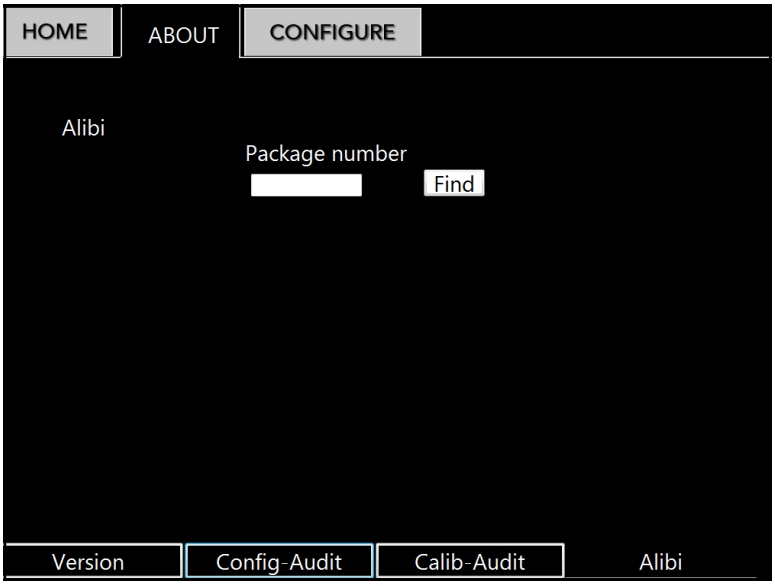


Figure 20
ABOUT Alibi

This tab lets you look up a specific package number. Measurements are recorded sequentially starting with the number one. The Alibi memory can hold up to 2,500,000 records.

To look up a package number, tap the empty field, enter the package number, and tap **Find**. The package information will be displayed. An example is shown below.

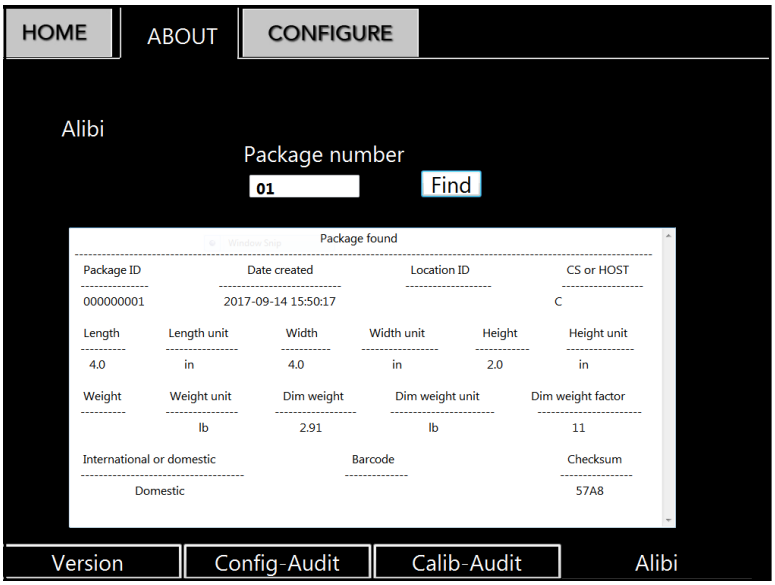


Figure 21
Package found

APPENDIX A
COMMUNICATIONS PROTOCOL

This appendix contains the command set description for the Cubiscan 75-C and a host computer.

Serial (RS-232-C) cable pin assignments

The CubiScan 75-C serial ports use the EIA RS-232-C communications protocol. The data is serially transmitted ASCII characters.

The following table shows the serial connector pin assignments. All other pins are not connected.

RS-232-C Male DB 9-Pin assignments		
Pin	Signal	Description
Pin 2	RXD	Commands from the host computer
Pin 3	TXD	Data from the controller unit to the host
Pin 5	SGND	Signal ground (DB-9 connector)

The following table shows the parameters for asynchronous communications through the RS-232 serial cable.

Asynchronous communication parameters	
Baud Rate	9600
Parity	None
Data Bits	8
Start Bits	1
Stop Bits	1

Ethernet (TCP/IP) cable pin assignments

The Cubiscan 75-C Ethernet port uses the 10/100Base-T TCP/IP communications protocol. The following table shows the Ethernet RJ-45 connector pin assignments.

RJ-45 connector pin assignments		
Pin	Signal	Description
1	TD+	Transmit Data
2	TD-	Transmit Data
3	RD+	Receive Data
4	NC	No Connection
5	NC	No Connection
6	RD-	Receive Data
7	NC	No Connection
8	NC	No Connection

The following table shows the parameters for the default Ethernet port settings.

Ethernet port (default settings)	
IP Address	DHCP or Static (Default static 10.1.100.100)
IP Com Port	1050

Cubiscan 75-C command set

This section describes the commands recognized by the Cubiscan 75-C.

All command packets begin with an STX (start of text) and end with an LF (line feed). Each command has a Command field and an optional Data field. For example:

<STX><COMMAND><DATA><ETX><CR><LF>

All commands receive either an Acknowledge response (ACK), or a Negative Acknowledge response (NACK). An ACK has an “A” in the third

character position and may include a data field. A NACK has an "N" in the third character position, indicating that an error occurred. For example:

ACK: <STX><COMMAND><A><DATA><ETX><CR><LF>
NACK: <STX><COMMAND><N><ETX><CR>

The Cubiscan 75-C responds with a question mark NACK to any unrecognized command. For example:

<STX><?><N><ETX><CR><LF>

When a NACK is sent by the Cubiscan 75-C, the operation associated with that command is aborted due to the error.

The Cubiscan 75-C recognizes the following commands from the command set for an Ethernet connection.

Cubiscan model query

This command queries the Cubiscan for model information.

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Query	Alpha	(O)	4Fh
3	1	End of Text	Control	(ETX)	03h
4	1	Carriage Return	Control	(CR)	0Dh
5	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Query	Alpha	(O)	74h
3	1	Acknowledge	Alpha	(A)	41h
4	7	Cubiscan Model	Alpha	(CS07501)	
11	1	End of Text	Control	(ETX)	03h
12	1	Carriage Return	Control	(CR)	0Dh
13	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Query	Alpha	(O)	4Fh
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	End of Text	Control	(ETX)	03h

Pos	Len	Description	Type	Range	ASCII
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah

Dimension units

This command is used to set the dimension units to either English (inches) or metric (centimeters) mode.

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Dim. Unit Command	Alpha	(")	22h
3	1	English or Metric	Alpha	(E/M)	45h or 4Dh
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Dim. Unit Command	Alpha	(")	22h
3	1	Acknowledge	Alpha	(A)	41h
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Dim. Unit Command	Alpha	(")	22h
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah

Factor definition

This command sends dim weight factor values to the Cubiscan. All factors are redefined with this string.

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Factor Definition	Alpha	(f)	66h
3	4	Domestic-lb-in factor	Numeric	0000-9999	
7	1	Comma	Alpha	(,)	2Ch
8	4	International-lb-in factor	Numeric	0000-9999	
12	1	Comma	Alpha	(,)	2Ch
13	4	Domestic-kg-in factor	Numeric	0000-9999	
17	1	Comma	Alpha	(,)	2Ch
18	4	International-kg-in factor	Numeric	0000-9999	
22	1	Comma	Alpha	(,)	2Ch
23	4	Domestic-lb-cm factor	Numeric	0000-9999	
27	1	Comma	Alpha	(,)	2Ch
28	4	International-lb-cm factor	Numeric	0000-9999	
32	1	Comma	Alpha	(,)	2Ch
33	4	Domestic-kg-cm factor	Numeric	0000-9999	
37	1	Comma	Alpha	(,)	2Ch
38	4	International-kg-cm factor	Numeric	0000-9999	
41	1	Comma	Alpha	(,)	2Ch
42	1	End of Text	Control	(ETX)	03h
43	1	Carriage Return	Control	(CR)	0Dh
44	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Factor Definition	Alpha	(f)	66h
3	1	Acknowledge	Alpha	(A)	41h
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h

Pos	Len	Description	Type	Range	ASCII
2	1	Factor Definition	Alpha	(f)	66h
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah

Factor toggle

This command is used to set the dimensional factor to either domestic or international.

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Fact. Toggle Command	Alpha	(F)	46h
3	1	Dom. / Int'l	Alpha	(D/I)	44h or 49h
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Fact. Toggle Command	Alpha	(F)	46h
3	1	Acknowledge	Alpha	(A)	41h
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Fact. Toggle Command	Alpha	(F)	46h
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah

Height calibration

This function causes the Cubiscan 75-C to enter the height calibration routine.

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Dim.Calibration	Alpha	(D)	44h
3	1	End of Text	Control	(ETX)	03h
4	1	Carriage Return	Control	(CR)	0Dh
5	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Dim. Calibration	Alpha	(D)	44h
3	1	Acknowledge	Alpha	(A)	41h
4	2	Identifier	Numeric	(00)	
6	1	End of Text	Control	(ETX)	03h
7	1	Carriage Return	Control	(CR)	0Dh
8	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Dim. Calibration	Alpha	(D)	44h
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah

Location ID

This command causes the Cubiscan 75-C to change its current Location ID data field. The Location ID is a six-digit code which uniquely identifies the Cubiscan within the user's operation.

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Location ID Command	Alpha	(L)	4Ch

Pos	Len	Description	Type	Range	ASCII
3	6	City Code	Alpha	000000-ZZZZZZ	
9	1	End of Text	Control	(ETX)	03h
10	1	Carriage Return	Control	(CR)	0Dh
11	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Location ID Command	Alpha	(L)	4Ch
3	1	Acknowledge	Alpha	(A)	41h
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Location ID Command	Alpha	(L)	4Ch
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah

Measure-legacy

This command causes the Cubiscan 75-C to initiate and communicate a measurement.

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Measure Command	Alpha	(M) or (C)***	4Dh or 43h
3	1	End of Text	Control	(ETX)	03h
4	1	Carriage Return	Control	(CR)	0Dh
5	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Measure Command	Alpha	(M) or (C)***	4Dh or 43h
3	1	Acknowledge	Alpha	(A)	41h

Pos	Len	Description	Type	Range	ASCII
4	1	Cubiscan/Host Originated	Alpha	(C/H)	43h or 48h
5	6	City Code	Alpha	000000-ZZZZZZ	
11	1	Comma	Alpha	(,)	2Ch
12	1	Length Identifier	Alpha	(L)	4C
13	5	Length	Numeric	000.0-999.9*	
18	1	Comma	Alpha	(,)	2Ch
19	1	Width Identifier	Alpha	(W)	57h
20	5	Width	Numeric	000.0-999.9*	
25	1	Comma	Alpha	(,)	2Ch
26	1	Height Identifier	Alpha	(H)	48h
27	5	Height	Numeric	000.0-999.9*	
32	1	Comma	Alpha	(,)	2Ch
33	1	Dimension Unit	Alpha	(E/M)	45h or 4Dh
34	1	Comma	Alpha	(,)	2Ch
35	1	Weight Identifier	Alpha	(K)	4Bh
36	6	Weight	Numeric	000.00-999.99**	
42	1	Comma	Alpha	(,)	2Ch
43	1	Dim. Wgt. Identifier	Alpha	(D)	44h
44	6	Dim. Weight	Numeric	000.00-999.99*	
50	1	Comma	Alpha	(,)	2Ch
51	1	Wgt./Dim.Wgt Unit	Alpha	(E/M)	45h or 4Dh
52	1	Comma	Alpha	(,)	2Ch
53	1	Factor Identifier	Alpha	(F)	46h
54	4	Factor	Numeric	0000-9999	
58	1	Comma	Alpha	(,)	2Ch
59	1	Domestic/Int'l. Unit	Alpha	(D/I)	44h or 49h
60	1	End of Text	Control	(ETX)	03h
61	1	Carriage Return	Control	(CR)	0Dh
62	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Measure Command	Alpha	(M) or (C)***	4Dh or 43h
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	Cubiscan/Host Originated	Alpha	(C/H)	43h or 48h

Pos	Len	Description	Type	Range	ASCII
5	1	Corner Sensor / Measure / Zero Error	Alpha	(C/M/Z)	43h or 4Dh
6	1	End of Text	Control	(ETX)	03h
7	1	Carriage Return	Control	(CR)	0Dh
8	1	Line Feed	Control	(LF)	0Ah

* This field may contain underscores, dashes, or tildes indicating an under, unstable, or over error condition, respectively. Leading spaces (20h) will be used when the actual data does not fill the entire field.

**This field contains only spaces (020h) because the Cubiscan 75-C does not have a scale.

***Initiates a continuous measure mode. You can discontinue this mode by resending the C command.

Measure-standard

This command causes the Cubiscan 75-C to initiate and communicate a measurement.

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Measure Command	Alpha	(M) or (C)***	4Dh or 43h
3	1	End of Text	Control	(ETX)	03h
4	1	Carriage Return	Control	(CR)	0Dh
5	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Measure Command	Alpha	(M) or (C)***	4Dh or 43h
3	1	Acknowledge	Alpha	(A)	41h
4	1	Cubiscan/Host Originated	Alpha	(C/H)	43h or 48h
5	6	City Code	Alpha	000000-ZZZZZZ	
11	1	Comma	Alpha	(,)	2Ch
12	1	Length Identifier	Alpha	(L)	4C
13	5	Length	Numeric	000.0-999.9*	
18	1	Comma	Alpha	(,)	2Ch

Pos	Len	Description	Type	Range	ASCII
19	1	Width Identifier	Alpha	(W)	57h
20	5	Width	Numeric	000.0-999.9*	
25	1	Comma	Alpha	(,)	2Ch
26	1	Height Identifier	Alpha	(H)	48h
27	5	Height	Numeric	000.0-999.9*	
32	1	Comma	Alpha	(,)	2Ch
33	2	Dimension Unit	Alpha	(in/cm)	
35	1	Weight Identifier	Alpha	(K)	4Bh
36	6	Weight	Numeric	000.00-999.99**	
42	1	Comma	Alpha	(,)	2Ch
43	1	Dim. Wgt. Identifier	Alpha	(D)	44h
44	6	Dim. Weight	Numeric	000.00-999.99*	
50	1	Comma	Alpha	(,)	2Ch
51	2	Wgt./Dim.Wgt Unit	Alpha	(lb/kg)	
53	1	Factor Identifier	Alpha	(F)	46h
54	4	Factor	Numeric	0000-9999	
58	1	Comma	Alpha	(,)	2Ch
59	1	Domestic/Int'l. Unit	Alpha	(D/I)	44h or 49h
60	1	End of Text	Control	(ETX)	03h
61	1	Carriage Return	Control	(CR)	0Dh
62	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Measure Command	Alpha	(M) or (C)***	4Dh or 43h
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	Cubiscan/Host Originated	Alpha	(C/H)	43h or 48h
5	1	Corner Sensor / Measure / Zero Error	Alpha	(C/M/Z)	43h/4Dh/ 5Ah
6	1	End of Text	Control	(ETX)	03h
7	1	Carriage Return	Control	(CR)	0Dh
8	1	Line Feed	Control	(LF)	0Ah

* This field may contain underscores, dashes, or tildes indicating an under, unstable, or over error condition, respectively. Leading spaces (20h) will be used when the actual data does not fill the entire field.

**This field contains only spaces (020h) because the Cubiscan 75-C does not have a scale.

***Initiates a continuous measure mode. You can discontinue this mode by resending the C command.

Measure expanded

This command causes the Cubiscan 75-C to initiate and communicate a measurement. This is a non-legal for trade mode.

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Measure Command	Alpha	(M) or (C)***	4Dh or 43h
3	1	End of Text	Control	(ETX)	03h
4	1	Carriage Return	Control	(CR)	0Dh
5	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Measure Command	Alpha	(M) or (C)***	4Dh or 43h
3	1	Acknowledge	Alpha	(A)	41h
4	1	Cubiscan/Host Originated	Alpha	(C/H/T)	43h/48h/ 54h
5	6	Location ID	Alpha	000000-ZZZZZZ	
11	1	Comma	Alpha	(,)	2Ch
12	8	Package Count	Numeric	00000000-99999999	
20	1	Comma	Alpha	(,)	2Ch
21	4	Year	Numeric	2000-9999	2Ch
25	1	Back Slash	Alpha	(/)	2Fh
26	2	Month	Numeric	01-12	
28	1	Back Slash	Alpha	(/)	2Fh
29	2	Day	Numeric	01-31	
31	1	Comma	Alpha	(,)	2Ch
32	2	Hour	Numeric	00-23	
34	1	Colon	Alpha	(:)	3Ah
35	2	Minute	Numeric	00-59	
37	1	Colon	Alpha	(:)	3Ah
38	2	Second	Numeric	00-59	
40	1	Comma	Alpha	(,)	2Ch

Pos	Len	Description	Type	Range	ASCII
41	7	Length	Numeric	L000.00- L999.99*	
48	1	Comma	Alpha	(,)	2Ch
49	2	Length Status	Numeric	00-99	
51	1	Comma	Alpha	(,)	2Ch
52	2	Length Units	Alpha	in or cm or mm	
54	1	Comma	Alpha	(,)	2Ch
55	7	Width	Alpha	W000.00- W999.99*	
62	1	Comma	Alpha	(,)	2Ch
63	2	Width Status	Numeric	00-99	
65	1	Comma	Alpha	(,)	2Ch
66	2	Width Units	Alpha	in or cm or mm	
67	1	Comma	Alpha	(,)	2Ch
68	7	Height	Alpha	H000.00- H999.99*	
75	1	Comma	Alpha	(,)	2Ch
76	2	Height Status	Numeric	00-99	
78	1	Comma	Alpha	(,)	2Ch
79	2	Height Units	Alpha	in or cm or mm	
81	1	Comma	Alpha	(,)	2Ch
82	10	Weight	Alpha	M000000.00- M999999.99**	
92	1	Comma	Alpha	(,)	2Ch
93	2	Weight Status	Numeric	00-99	
95	1	Comma	Alpha	(,)	2Ch
96	2	Weight Units	Alpha	lb or kg	
98	1	Comma	Alpha	(,)	2Ch
99	10	Dim Weight	Alpha	D000000.00- D999999.99*	
109	1	Comma	Alpha	(,)	2Ch
110	2	Dim Weight Status	Numeric	00-99	
112	1	Comma	Alpha	(,)	2Ch
113	2	Dim Weight Units	Alpha	lb or kg	
115	1	Comma	Alpha	(,)	2Ch
116	5	Factor	Numeric	F0000-F9999	
121	1	Comma	Alpha	(,)	2Ch

Pos	Len	Description	Type	Range	ASCII
122	1	International or Domestic	Alpha	(D or I)	44h or 49h
123	1	Comma	Alpha	(,)	2Ch
124	50	Barcode	Numeric	50 characters	
174	1	Comma	Alpha	(,)	2Ch
175	4	Check Sum-Hex	Alpha	0000-FFFF	
179	1	End of Text	Control	(ETX)	03h
180	1	Carriage Return	Control	(CR)	0Dh
181	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Measure Command	Alpha	(M) or (C)***	4Dh or 43h
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	Cubiscan/Host Originated	Alpha	(C/H)	43h or 48h
5	1	Corner Sensor / Measure / Zero Error	Alpha	(C/M/Z)	43h or 4Dh
6	1	End of Text	Control	(ETX)	03h
7	1	Carriage Return	Control	(CR)	0Dh
8	1	Line Feed	Control	(LF)	0Ah

* This field may contain dashes indicating an invalid measure. Leading spaces (20h) will be used when the actual data does not fill the entire field.

**This field contains only spaces (020h) because the Cubiscan 75-C does not have a scale.

***Initiates a continuous measure mode. You can discontinue this mode by resending the C command.

Pulse

This command sets the “heartbeat” pulse value. The heartbeat value determines how often (in seconds) the Ethernet port is tested for activity. If no pulse is sent, the Ethernet port will disconnect.

0000=No socket timer set

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Heartbeat/Pulse Command	Alpha	(+)	2Bh
3	4	Value	Numeric	0000-9999	
7	1	End of Text	Control	(ETX)	03h
8	1	Carriage Return	Control	(CR)	0Dh
9	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Heartbeat/Pulse Command	Alpha	(+)	2Bh
3	1	Acknowledge	Alpha	(A)	41h
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Heartbeat/Pulse Command	Alpha	(+)	2Bh
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah

RGB

This command changes the display image from the live view (1) to the color depth view (0).

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	RGB Command	Alpha	(R)	52h
3	1	Live or Depth	Numeric	(1,0)	
4	1	End of Text	Control	(ETX)	03h

Pos	Len	Description	Type	Range	ASCII
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	RGB Command	Alpha	(R)	52h
3	1	Acknowledge	Alpha	(A)	41h
4	1	Live or Depth	Numeric	(1,0)	
5	1	End of Text	Control	(ETX)	03h
6	1	Carriage Return	Control	(CR)	0Dh
7	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	RGB Command	Alpha	(R)	02h
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah

Send file (encoded)

This command sends an image file (Base64String, ASCII encoded) with a Data Header.

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Send File Command	Alpha	(g)	67h
3	1	RGB	Alpha	(1)	31h
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Send File Command	Alpha	(g)	67h
3	1	Valid File	Alpha	(3)	33h
4	4	Packet Number	Numeric	0001	
8	4	Packet Length (holder)	Numeric	1400	

Pos	Len	Description	Type	Range	ASCII
12	1	Data	Binary	n=dataNum	Data
n+13	1	End of Text	Control	(ETX)	03h
n+14	1	Carriage Return	Control	(CR)	0Dh
n+15	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Send File Command	Alpha	(g)	67h
3	1	Invalid File	Numeric	(5)	35h
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah

Send file (uncoded)

This command sends a stream of images.

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Send File Command	Alpha	(g)	67h
3	1	Stream	Alpha	(S)	53h
4	n	File Name	Alpha	snapshotD.jpg snapshot.jpg	
n +4	1	End of Text	Control	(ETX)	03h
n +5	1	Carriage Return	Control	(CR)	0Dh
n +6	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Send File Command	Alpha	(g)	67h
3	1	Stream	Alpha	(S)	53h
4	1	Acknowledge	Alpha	(A)	41h
5	1	Comma	Alpha	(,)	2Ch
6	10	File Size	Binary	(0000000000)- (9999999999)	
16	1	Comma	Alpha	(,)	2Ch
17	n	File Data	Binary		
n+18	1	End of Text	Control	(ETX)	03h

Pos	Len	Description	Type	Range	ASCII
n+19	1	Carriage Return	Control	(CR)	0Dh
n+20	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Send File Command	Alpha	(g)	67h
3	1	Stream	Alpha	(S)	53h
4	1	Neg. Acknowledge	Alpha	(N)	4Eh
5	1	End of Text	Control	(ETX)	03h
6	1	Carriage Return	Control	(CR)	0Dh
7	1	Line Feed	Control	(LF)	0Ah

Tare

This function causes the Cubiscan 75-C to enter the tare routine.

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Dim.Calibration	Alpha	(H)	48h
3	1	End of Text	Control	(ETX)	03h
4	1	Carriage Return	Control	(CR)	0Dh
5	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Dim. Calibration	Alpha	(H)	48h
3	1	Acknowledge	Alpha	(A)	41h
4	2	Identifier	Numeric	(00)	
6	1	End of Text	Control	(ETX)	03h
7	1	Carriage Return	Control	(CR)	0Dh
8	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Dim. Calibration	Alpha	(H)	48h
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah

Trigger

This command sets the measurement trigger to object detection trigger mode(1) or manual mode(0).

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Trigger Command	Alpha	(t)	0x74
3	1	Automatic or Manual	Alpha	(1,0)	31h or 30h
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Trigger Command	Alpha	(t)	74h
3	1	Acknowledge	Alpha	(A)	41h
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Trigger Command	Alpha	(t)	74h
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah

Units

This command causes the Cubiscan 75-C to report its unit settings, dimensional factor, and location ID.

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Values Command	Alpha	(U)	55h
3	1	End of Text	Control	(ETX)	03h

Pos	Len	Description	Type	Range	ASCII
4	1	Carriage Return	Control	(CR)	0Dh
5	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Units Command	Alpha	(U)	55h
3	1	Acknowledge	Alpha	(A)	41h
4	1	Dimension Units	Alpha	(E/M)	45h or 4Dh
5	1	Weight Units	Alpha	(E/M	45h or 4Dh
6	1	Factor Units	Alpha	(D/I)	44h or 49h
7	4	Dimensional Factor	Numeric	0000-9999	
11	6	Location ID/City Code	Alpha	000000-ZZZZZZ	
17	1	End of Text	Control	(ETX)	03h
18	1	Carriage Return	Control	(CR)	0Dh
19	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Units Command	Alpha	(U)	55h
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah

Weight units

This command is used to set the weight units to either English (pounds) or metric (kilograms) mode.

Pos	Len	Description	Type	Range	ASCII
Command format					
1	1	Start of Text	Control	(STX)	02h
2	1	Wgt. Unit Command	Alpha	(#)	23h
3	1	English or Metric	Alpha	(E/M)	45h or 4Dh
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah
Acknowledge format					
1	1	Start of Text	Control	(STX)	02h

Pos	Len	Description	Type	Range	ASCII
2	1	Wgt. Unit Command	Alpha	(#)	23h
3	1	Acknowledge	Alpha	(A)	41h
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah
Negative acknowledge format					
1	1	Start of Text	Control	(STX)	02h
2	1	Wgt. Unit Command	Alpha	(#)	23h
3	1	Neg. Acknowledge	Alpha	(N)	4Eh
4	1	End of Text	Control	(ETX)	03h
5	1	Carriage Return	Control	(CR)	0Dh
6	1	Line Feed	Control	(LF)	0Ah

APPENDIX B
PARTS LIST

Following is a list of parts that can be purchased for the Cubiscan 75-C as spare parts or if replacement is necessary.

Part No.	Description	Quantity/Unit
10083	AC power cord	1
11493	Serial communications cable, 10 ft	1
12997	USB to Serial adapter	1
13411	USB to Ethernet adapter	1
13413	Ethernet communications cable, 10 ft	1
14062	Power supply	1
14534	Calibration cube, 12'' x 12'' x 12'', white	1
14912	User manual	1