

iDimension 100

Operation Manual



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Rice Lake continually offers web-based video training on a growing selection of product-related topics at no cost. Visit www.ricelake.com/webinars.

1.0 Introduction

iDimension 100 is the future of dimensioning. Designed as an economical solution for low- and high-volume shipping applications, iDimension 100 dimensions packages, flats and irregular shapes in sub-second speeds.

When interfacing this device to a third party's software program, please reference the software manufacturer's documentation for setup and configuration parameters as necessary.

iDimension 100 Operation Manual

This manual includes an overview of the installation requirements, operation of the iDimension 100 and configuration parameters to change in the QubeVu Manager to alter the performance of the unit.

iDimension 100 QubeVu Managers Guide

The iDimension 100 QubeVu Managers Guide (PN 172726) is a detailed overview of the QubeVu Manager, the embedded firmware of the iDimension 100. The QubeVu Manager is a set of tools provided to set up and configure the iDimension 100 in any environment. It provides additional operator displays when hooked up to a network computer, as well as configuration parameter settings used to adjust the device to meet the application's needs. These tools are recommended for use by a technical systems administrator.

iDimension 100 Assembly Instructions

The iDimension 100 Assembly Instructions manual (PN 171899) describes how to assemble and configure the iDimension 100 using the setup wizard to perform an accuracy test prior to placing the unit into service in its intended location.



Manuals can be viewed or downloaded on the Rice Lake Weighing Systems distributor site at www.ricelake.com

Warranty information can be found on the website at www.ricelake.com/warranties

1.1 Safety

Safety Symbol Definitions



Indicates a potentially hazardous situation that, if not avoided, could result in serious injury or death, and includes hazards that are exposed when guards are removed.



Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury.



Indicates information about procedures that, if not observed, could result in damage to equipment or corruption to and loss of data.

Safety Precautions



Do not operate or work on this equipment unless you have read and understand the instructions and warnings in this manual. Contact any Rice Lake Weighing Systems dealer for replacement manuals. Proper care is your responsibility.

General Safety



Failure to heed may result in serious injury or death.

Electric shock hazard!

Pluggable equipment must be installed near an easily accessible socket outlet.

Always disconnect from main power before performing any work on the device.

Check the power cable for damage regularly and replace it immediately if it is damaged.

On the side of the device, maintain a clearance of at least 1.5 inches in order to prevent damage to the cable.

Do not allow minors (children) or inexperienced persons to operate this unit.

Do not operate without all shields and guards in place.

Do not place fingers into slots or possible pinch points.

Do not use this product if any of the components are cracked.

Do not make alterations or modifications to the unit.

Do not remove or obscure warning labels.

Keep hands, feet and loose clothing away from moving parts.

Do not use in hazardous areas.

Do not open the scanning head. The warranty and certification is void if this stipulation is ignored. The device may only be opened by authorized persons.

1.2 iDimension 100 Parts

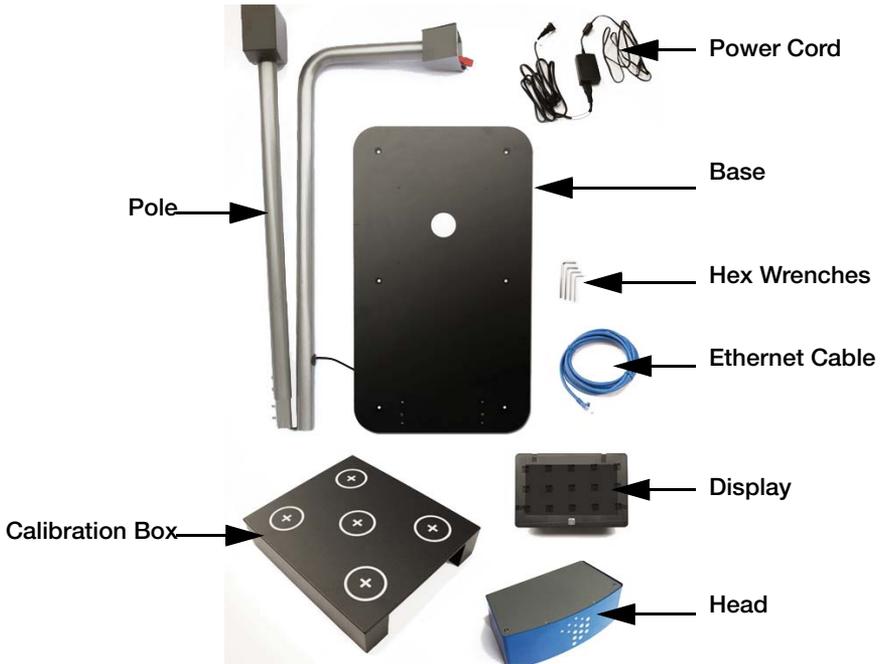


Figure 1-1. Parts Illustration

Immediately after unpacking the iDimension 100, visually inspect the contents to ensure all components are included and undamaged. If any parts were damaged in shipment, notify the shipper immediately. See the iDimension 100 Assembly Instructions manual for installation instructions.



Important

Failure to adhere to the notes below will invalidate the warranty and may result in damage that could require repair or replacement charges.

Retain packaging. When transporting the unit, always disassemble and pack it in its original packaging.

Use only supplied power adapter. Never short-circuit the power adapter or the device. Keep the unit dry.

Operate between 41 - 104° F (5 - 40° C).

Never remove the iDimension 100's head cover or the electrical connection panels at the base of the pole assembly.

Never modify or attempt to repair the unit. Service must be performed by Rice Lake Weighing Systems only.

Handle cables and cable connectors with care. Never use damaged power cords or plugs or loose electrical sockets. Never touch the power cord with wet hands.

Ensure that the base plate, pole assembly and head unit are all securely attached before attempting to move the unit.

Never lift the unit by grasping only the pole assembly; always ensure that both sections of the pole assembly and the base plate are supported.

Never drop or allow an impact to the head.

Mount on a flat surface.

Never use product for anything other than its intended purpose.

1.3 Overview

The following connections are available in the back of the scanning head. These are used during assembly.

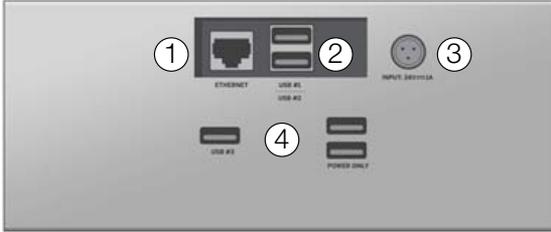


Figure 1-2. Scanning Head

Number	Description
1	Ethernet Port
2	Two USB Ports (Type A for Aux Power)
3	Power (DC in) - 24 V 1
4	Three Standard USB Ports (Type A)

Table 1-1. Scanning Head Connections

The following connections are available in the back of the electrical base.



Figure 1-3. Electrical Base

Number	Description
1	Standard USB Port (Type A)
2	Ethernet Port (used to connect to network in order to interface compatible software)
3	Power (DC in) - 24 V 1

Table 1-2. Electrical Base Connections

The iDimension 100 setup wizard has configured the following:

- USB touchscreen display – weight display **Enabled**
- NTEP configurations – **Off**
- Automatic dimensioning mode – **On**
Example: Place an item on the scale or on the base plate and the unit automatically displays the length, width and height of the item, as well as the weight (if the scale is enabled) on the USB touchscreen display.
- Identification of flats (items less than 1.2 inches) with attached scale
Example: The iDimension 100 identifies flats using the scale to determine if an object is present.
- Scale interface configuration is set to automatic for interfacing to the following compatible scales:
 - NCI Shipping Scales using NCI protocol*
 - Mettler Toledo Shipping Scales*
 - Mettler Toledo Scales using the MTSICS command set*
 - Pennsylvania 7300 Shipping Scale*
 - USB HID scales like the Fairbanks Ultegra and Mettler Toledo PS Series
 - Rice Lake 420 Indicator with custom NCI software**Requires RS-232 to USB converter for connection to the iDimension 100*
- Flat detection – **Off**

To modify the out-of-box configuration, use this manual in conjunction with the iDimension 100 Managers Guide (PN 172726) to make the appropriate settings or contact the Rice Lake Weighing Systems dimensioning team for support.

2.0 Operation

2.1 Touchscreen Display

The touchscreen display provides the dimensions and optional weight of an item, as well as various status indicators. It also gives the operator access to system level controls. The touchscreen display will not display images. The power button for the USB display is located on the back of the unit.



Figure 2-1. Operator Touchscreen Display

2.1.1 Indicators and Controls

Indicator	Name	Description
	Out of Bounds Indicator	This symbol indicates the item has not been placed within the viewable area. If all arrows are lit, it indicates that there is either not an item in the viewable area, or that the item is too large. If only one arrow is lit, it indicates the direction the item is out of bounds.
	Regular Shape Indicator	This symbol indicates the item was treated as a regular shape.
	Irregular Shape indicator	This symbol indicates the item was treated as an irregular shape.
	Device Information Button	Press this button to display the Device Information Screen.
	Zero Height Button	Press this button to access the zero height function.
	Status Indicator	This symbol indicates the current status of the device. Refer to the iDimension API Guide (PN 167741) for more information.
	Help Button	Provides real-time feedback based on the current status.

Table 2-1. Indicators and Controls

2.1.2 Device Information

The *Device Information* screen displays important information about the device.

Select  to display the *Device Info* screen.

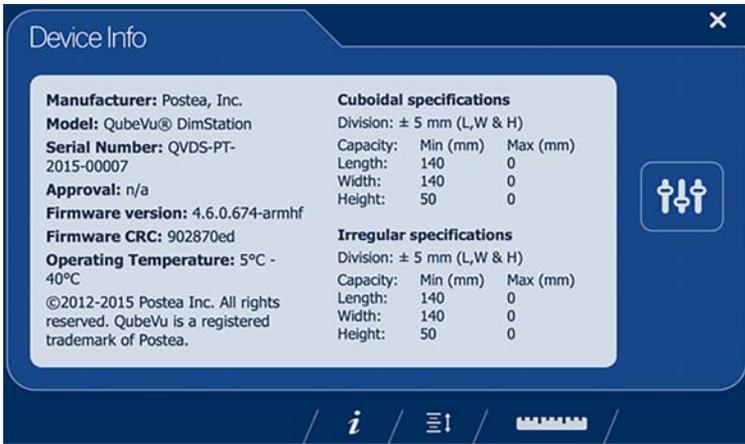


Figure 2-2. Device Information Screen

Exit the *Device Information* screen by clicking on the **X** in the top right corner of the screen, or by clicking on the  (ruler icon) on the bottom of the screen.

The *Device Information* screen also provides the operator access to the *Configuration Menu* by clicking on .

2.2 Measurement

When reporting dimensions of an item, the device defines length, width and height as follows:

- Length – the longer of the two horizontal measurements
- Width – the shorter of the two horizontal measurements
- Height – the vertical measurement

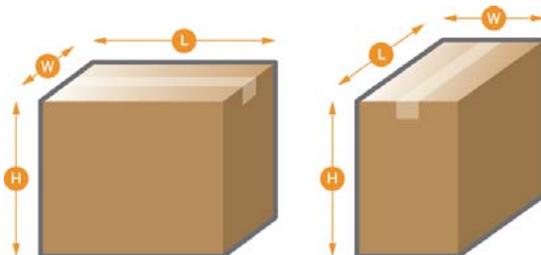


Figure 2-3. Object Measurements

The iDimension Series has been tested and approved with an NTEP certified accuracy of ± 0.2 inches on regular shaped items and ± 0.5 inches on irregular shaped objects, as shown in Tables 2-2 and 2-3.

	Minimum (inches)	Maximum (inches)	Division (inches)
Length	5.6	48	0.2
Width	5.6	28	0.2
Height	2.4	28	0.2

Table 2-2. NTEP Certified Measurement Ranges - Cube

	Minimum (inches)	Maximum (inches)	Division (inches)
Length	6	48	0.5
Width	6	28	0.5
Height	6	28	0.5

Table 2-3. NTEP Certified Measurement Ranges - Irregular



Note Minimum and maximum NTEP Certified capacities do not reflect non-NTEP Certified performance specifications. Contact Rice Lake Weighing Systems for assistance.

The maximum sizes defined in Tables 2-2 and 2-3 do not represent the largest package size that can be dimensioned.

Example: If the width and height of the package is approximately 12 inches, the maximum length could be 54 inches long.

When a scale is used on top of the *iDimension 100's* base plate, it will reduce the maximum package size available since it reduces the distances between the scanning head and base plate.

To dimension packages or flats that are less than 1.2 inches high, turn on the **Enable Flats** feature in the touchscreen's **Configuration Menu**. Once enabled, the device will prompt to use the scale attached or the flat detection circle on the platform.

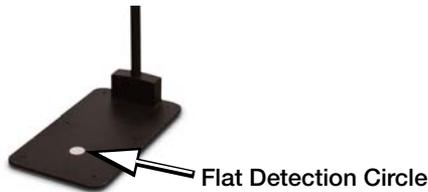


Figure 2-4. Flat Detection Circle

2.3 Irregular Shapes

The *iDimension 100* is factory configured to dimension both cube (rectangular) and irregular shaped packages.

Table 2-5 shows some examples of how and what types of shapes the *iDimension 100* will measure.

	Standard cube		Cube with an uneven top
	Cylinder		Cube with a sloped side
	Donut		Cube with 1 irregular side
	Sphere		Overstuffed cube
	Polybag		Crumpled cube
	Tube		Cube with handles
	Triangular tube		Cube on a cube
			Cube next to a cube

Figure 2-5. Package Shapes

2.4 Item Placement

For best results, locate the item centrally below the scanning head. However, exact placement is not required.

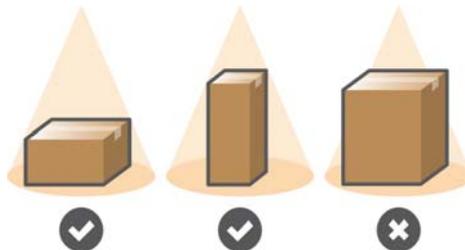


Figure 2-6. Item Placement

The maximum size of an item to be dimensioned varies due to the camera's field of view.

2.5 Zone of Interest

The zone of interest represents the detection area to be used for item dimensioning. Items must be placed at least partially within the zone of interest.

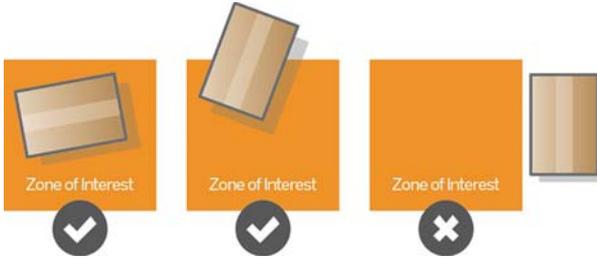


Figure 2-7. Zone of Interest



Note

The zone of interest is typically the size of the scale. Any item that is not at least partially within the zone of interest will not be scanned. Any item that has a height less than 1.2 inches (a flat) must be within the zone of interest to scan.

2.6 Work Area

The work area represents the area around the base used for detecting motion. The system will wait until there is no motion detected before attempting to scan an item. The work area also provides a maximum area for the detection of flats (items less than 1.2 inches in height). Flats must be completely within the work area in order to be detected.

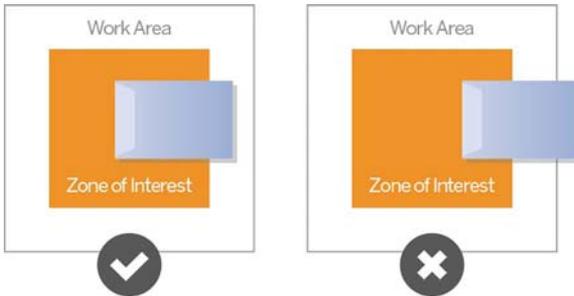


Figure 2-8. Flat Work Area



Important

Figure 2-8 is for Flats only. Parcels will be dimensioned even if part of the item is outside of the work area.

2.7 Modes of Operation

The *iDimension 100* is configured to run in either automatic or manual mode. The unit's configuration will depend upon the requirements and implementation of a company's application.



Note

Do not hold the package in position, or place hands in the scanning area. The *iDimension 100* may include the hand/arm as part of the dimensions.

Automatic Operation

When *iDimension 100* is configured in automatic mode, a scan of the item will start after the system has detected that all motion has stopped under the scanning head. When an item is placed on the scale or the base plate it can be re-positioned, but it will not scan until all motion has stopped.

Manual Operation

When the *iDimension 100* is configured in manual mode, motion detection has been turned off. There may be a button on the screen to select in order to initiate the scan, or a bar code scan can initiate the scan when used with a custom user program.

2.8 Environmental Conditions

2.8.1 Lighting

The *iDimension 100* is designed to work in most locations without having to use additional lighting. For best results in bar code scanning and imaging, the LUX value at the center of the scanning area should be 300 or higher. If only capturing dimensions, low lighting is not a factor.

In some cases, the image may appear under or over exposed. Use the Image Quality configuration tools in the QubeVu Manager to adjust exposure settings. Alternatively, see the administrator or call the Rice Lake Weighing Systems Dimensioning Team for more information.

2.8.2 Table/Scale Color

A dark-colored table/scale is recommended for capturing dimensions. Use a non-glossy black mat to cover the scanning area if necessary.

If scanning over a roller conveyor, color is not an issue.

2.8.3 Scale Placement

If using a scale, it should be placed on the base plate, centered on the marks. See Figure 2-9. It is recommended to secure the scale into position. Continuous movement of the scale may provide inaccurate measurements. If the scale moves from the original position placed after a zero height or reset function, results may be inaccurate.

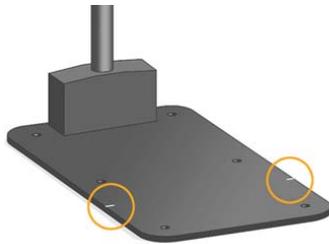


Figure 2-9. Base Plate Marks

2.8.4 Operating with a Scale

When attaching a scale to the *iDimension 100*, the scale must be connected to the USB port on the back of the unit. Some scales may only have RS-232 available—use an RS-232 to USB converter to connect the scale. When connecting the scale, the weight will be added to the touchscreen display and the output stream. The *iDimension 100* interfaces to a limited selection of scales. See the list of scales compatible with the *iDimension* series in the *iDimension 100* Managers Guide (PN 172726). Follow the scale manufacturer’s instructions for proper operation and configuration of the scale.

- Set the scale unit to metric or imperial.
- Before placing an item, ensure the scale is zeroed and settled.
- After placing an item on the scale, the weight reading must settle.

2.9 iDimension Touchscreen Configuration Menu

The *Configuration Menu*, when accessed via the optional touchscreen monitor, presents more configuration options than when accessed via the operator display on a PC. The options presented are to accommodate stand-alone deployments. All options are also available from the Admin Tools menu in QubeVu Manager, see the *iDimension 100* Managers Guide.



Figure 2-10. Touchscreen Configuration Menu

Setup Wizard

The **Setup Wizard** button initiates the setup routine described in the *iDimension 100* Assembly Instructions.

View EULA

The **View EULA** button displays the Software End User License Agreement.

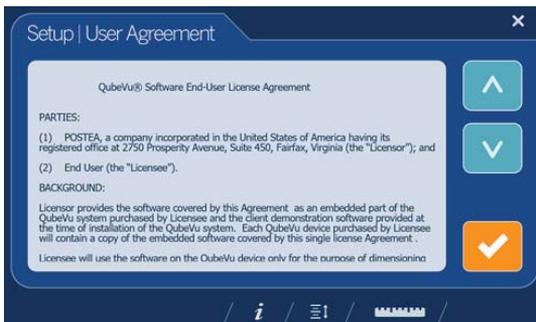


Figure 2-11. Software End User License Agreement

Time Zone

The **Time Zone** button displays the current time zone.

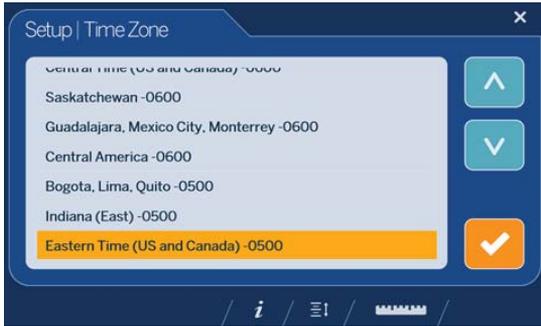


Figure 2-12. Time Zone

Use the following instructions to edit the time zone.

1. Touch  or  to view time zone options.
2. Touch preferred time zone to select it.
3. Touch  to confirm and return to the **Configuration Menu**.

Date and Time

The **Date and Time** button allows the adjustment of date or time if necessary.

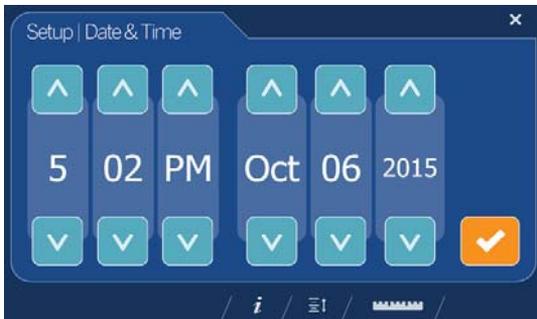


Figure 2-13. Date and Time

Use the following instructions to adjust the date or time.

1. Touch  or  to change each individual digit of the date and time, as necessary.
2. Touch  to confirm and return to the **Configuration Menu**.

Zero Height

The **Zero Height** button calculates the distance between the scan head and the base. Zeroing the height after initial setup is only necessary if the distance between the scan head and the measuring platform changes, for example, when a scale is added or removed.

The zero height process differs depending on whether the base is flat or uneven.

1. Touch the **Zero Height** button on the **Configuration Menu**.
2. Select the base type of the *iDimension 100*.
 - If the base is a smooth top scale or the base of the *iDimension 100*, touch  and proceed to step 4.
 - If the base is a scale with an uneven surface (such as rollers), touch  and proceed to step 3.



Figure 2-14. Indicate Type of Base

3. If using an uneven scale or base, place the calibration box on the scale and press  to continue.
4. Ensure the base is clear and unobstructed so that the unit can set the zero height accurately. Touch  to continue.
5. Stand clear of the device before the countdown completes.
6. A prompt will display when the zero height has been set successfully.
Remove the calibration object, if used, and touch  to continue.

Scan Zone

The **Scan Zone** is the area in which the unit looks for and dimensions items. For best performance, adjust this to cover the largest area possible that would be used for scanning items. Ensure this area is kept clear of all other objects. Adjust the scan area

by dragging each of the four touch points. Then, touch  to continue.



Figure 2-15. Identify the Scan Zone

Restart

The **Restart** button will prompt for confirmation before restarting the device. Touch

 to confirm or  to cancel.



Figure 2-16. Restart the Device

Enable Flats

Flats are items measuring less than the minimum height setting, which has a default value of 1.2 inches. **Enable Flats** allows the flat detection of these items. It is disabled by default.

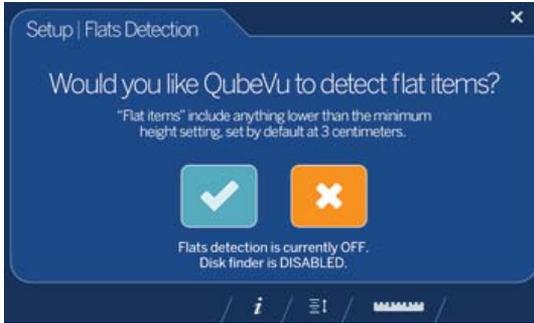


Figure 2-17. Enable Flats

Touch  to enable flats detection. Touch  to disable flats detection. Flat detection requires that either a scale is connected to the USB port on the device, or the white dot on the base is visible. Touch  if a scale is connected to the iDimension 100. Touch  if the white dot is visible on the iDimension 100. The service will restart and the display will return to the *Configuration Menu*.

Upgrade Firmware

When upgrading firmware, the firmware release must be downloaded to a USB flash drive. For more information on firmware upgrades, contact the Rice Lake Weighing Systems Dimensioning Team.

1. Attach the flash drive to the *iDimension 100* USB port. Touch  to continue.
2. All firmware upgrade files contained on the flash drive will be displayed.



Figure 2-18. Upgrade Firmware

3. Touch the preferred version (it will highlight in orange) and then touch  to continue. The firmware upgrade file checksum will validate the file.
4. Touch  to proceed with the upgrade, or touch  to cancel. The update process will take a few minutes. Do not interrupt the process. The unit will restart upon completion.

IP Address

The **IP Address** button displays the current *iDimension 100* IP address.

2.9.1 Advanced Configuration with QubeVu Manager

The QubeVu Manager is a set of software tools provided to enable advanced configuration. They are not needed in most cases, and are recommended for use only by a technical administrator. Please refer to the *iDimension 100 Manager's Guide* for a complete guide to the tools. The latest version of the Manager Guide, along with all other product documentation, can be downloaded at www.ricelake.com.

Define the *iDimension 100* on the Network

The QubeVu Manager software is accessed via an IP address over a wired Ethernet connection. To access the tools, the unit must be defined on the network.

The unit can be installed as a network device and can be configured with a static IP address, or by using DHCP. Consult the network administrator to determine the best approach for the enterprise network.

The unit is shipped with a dual IP configuration. The network interface will lease an address from any available DHCP server. However, it also has a fixed, fail-safe IP address of 169.254.1.1. If DHCP is preferred, the network administrator can advise as to the IP address leased by the unit.

Configure PC Network Settings

1. Connect to a computer using a standard Ethernet cable.
2. Configure the computer's Ethernet interface with an IP address of 169.254.1.10 and a subnet mask of 255.255.255.0.

Consult with the network administrator if unsure how to change the computer's IP address.

Verify Connectivity

Verify that the computer can communicate with the *iDimension 100*. Use the ping command to confirm connectivity by pinging 169.254.1.1.

If the ping command does not show the unit is responding, this may be due to an issue with the network configuration. Make sure that wireless networking is turned off, then try the ping command again. If this is still unsuccessful, contact the network administrator for further assistance.

Access QubeVu Manager Mode

To view the Manager home page, open an Internet browser and enter <http://169.254.1.1>. If using DHCP, remember to replace 169.254.1.1 with the IP address provided by the network administrator.

3.0 Appendix

3.1 Troubleshooting

3.1.1 iDimension 100 Is Not Responding

If the iDimension 100 is not responding at all, try the following.

- Check that the power cable is connected to the rear panel and is properly plugged into a power outlet.
- On the underside of the scan head, check that the green LED is on.

If power is connected and the green LED is on, restart the application.

If restarting the application does not resolve the problem, power cycle the device.

1. Locate the power connector on the rear of the base.
2. Remove the power cord for three seconds, then replace.
3. Wait until the three green LED is back on.
4. Restart the application.

If neither of these actions is successful, contact the Rice Lake Weighing Systems Dimensioning Team for additional help.

3.1.2 Touchscreen Display is not Working

Check connections of cables in the scan head. Turn the display on (the power button is located on the back of the unit).

3.1.3 Scale will not Interface

Check the USB connection in the scan head. The scale may not be correctly configured to use with the system, see the iDimension 100 Manager's Guide. The scale may not be compatible, call Rice Lake Weighing System for a list of compatible scales.

3.1.4 Captured Images Show Arm

Be sure to move hands and arms away from the scanning area after placing an item. If problems persist, ask the iDimension 100 Administrator to review the configuration settings for *Lock Motion* and *Motion Down*. Refer to the iDimension 100 Manager's Reference Guide for more information.

3.1.5 Some Items Do Not Trigger Automatic Capture

If operating with a scale, make sure the scale is registering a stable weight for the item.

3.1.6 Will Not Return to a Ready State

If the iDimension 100 does not go to a ready state at power up, make sure that the work area is clear of objects, and the scale (if attached) is at zero.

3.2 Specifications

Physical Specifications

Height (with Standard Frame) 63.7 inches/162 cm
Base Dimensions Length: 25 in/63.5 cm Width: 14 in/36 cm
Weight (without Frame) 27.2 lb/12.3 kg

Operating Conditions

Indoor operating temperature 41° - 104° F (5° - 40°C)
Humidity Non-condensing
Mechanical environment class M1
Electromagnetic class E1
Power 110V - 240V

Performance Specifications

Shape LFT: Cuboid
Non-LFT: Cuboid, irregular shapes
Accuracy ± 0.2 in (± 5 mm)
Item position Dimensions only: Any position
Object colors All opaque packaging; some variances may occur with glossy surfaces or shrink wrap
Measurement surface Level table or scale
Background should have contrasting color from items to be dimensioned; also avoid overly polished or glossy surfaces

Interoperability

Scales The following are supported:

- Rice Lake 420 Indicator with custom NCI software
- NCI Shipping Scales using NCI protocol*
- Mettler Toledo Shipping Scales*
- Mettler Toledo Scales using the MTSICS command set*
- Pennsylvania 7300 Shipping Scale*
- USB HID scales (Fairbanks Ultegra and Mettler Toledo PS Series)

Other scales and interfaces can be supported; please contact RLWS Customer Support for custom quotes.

Communications

Communications interface HTTP/HTTPS

Tools are provided for setup, calibration and service.

Connectivity 1 USB, Type A

1 – 10/100/1000BASE-T Ethernet

Technical Specifications

System requirements Client computer with Ethernet connection.

Customer applications can be integrated with **iDimension 100** using a web service interface.

Configuration tool requires a JavaScript-enabled browser.

Applications Interface Web Services

API documentation available



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