SCIENTECH

(CS750)

Operating Manual

Thank you for choosing a Scientech Cabus Balance. Scientech, an ISO9001 registered company, and its employees are pleased to provide you with a balance designed and manufactured for years of reliable service and proudly made in the U.S.A. Please read this manual completely before using your balance. This information will enable you to fully understand how to set up and operate your balance. The balance is intended to be used only in the manner outlined in this manual. Operation not within specifications for the product may cause product damage.

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1 Good Measurement Practices

There are numerous steps that one can take to improve the quality of a mass measurement system. However, they usually fall within three main categories: the equipment, the environment, and the operator. If even one of these areas is neglected, it can have a dramatic negative impact on your results. Although these suggestions are not meant to be all encompassing or all-inclusive, the improvements that can be made following these simple guidelines can significantly improve measurement results.

1.1 Equipment

1. Select weights that have a tolerance that is one third or better than the accuracy you require for your application. This way the error of the weight will not dramatically impact the quality of your measurements.
2. The equipment must be of sufficient readability to calibrate or measure the weight or sample under test.
3. The balance should be placed on a stable platform free from the effects of vibration. The best setup is to place the balance module onto a table constructed of marble or granite.
4. Never use a balance or scale as soon as it is powered on (plugged in). The internal electronic components need to stabilize and "warm up" for at least 5 minutes once the equipment has been powered on. When the Cabus balance is first setup or moved to a different location, allow for at least 30 minutes once the equipment has been powered on. Scientech recommends that you leave this instrument plugged in twenty-four hours a day, seven days a week.
5. Never use a balance that has been idle for several hours without first "exercising it" and calibrating it. A balance is exercised by lightly tapping the weighing pan 3 to 4 times. After exercising, the balance should be calibrated. If these two techniques are consistently employed, a noticeable improvement will result in both linearity and stability of the measurement.
6. When weights are not in use, store them in the case in which they were supplied. If the weights were not supplied with a case, either purchase a case or use a clean container to protect the surfaces. This will keep airborne particles from getting on your weights between uses. Weights should be in thermal equilibrium with the balance so store weights near your balance.

1.2 Environment

The environment in which your balance is used is very important. Air currents, large temperature fluctuations (e.g., fans, air conditioning), vibrations, influences the performance of high precision balances. Therefore, place your balance on a solid, sturdy surface that is free of air currents, vibration and not in direct sunlight. The surface should not be magnetic and should be located away from doors, windows, heaters, air conditioners and fans.

1. The more stable your environment, the better your measurement results. Changes in temperature, pressure, and humidity affect balance performance and weight stability. Ideal room conditions are 20° C with a relative humidity between 45% and 60%. Fluctuations in temperature should not exceed 1° C per hour. Humidity fluctuations should not exceed 10% per hour.
2. Balances should not be placed in close proximity to anything that shakes, vibrates, or stirs violently. Avoid placing your equipment near shakers.
3. Do not place your balance and/or scale near anything that generates heat. Heat will cause the balance chamber to warm and due to the effects of the thermal expansion introduce large errors into your measurement. Do not place the balance directly in front of a window. Sunlight can penetrate the window, warm the balance chamber at different rates during the day, and affect the quality of your work.
4. Avoid placing the balance near sources of drafts, extreme air currents, or near air-conditioning vents. These positions can cause your readings to be unstable and can dramatically cool the balance chamber when the air-conditioning system begins to run.
5. The measurement environment should be clean and free of excessive contaminants. Contaminants such as dirt and grease can adversely affect the weight of an object.

1.3 Operator

1. Never touch a weight with your bare hands. Oils and contaminants from your hand will be transferred to the weight and introduce a significant error. It is recommended that all weights be manipulated with gloved hands or forceps. The two types of gloves that are commonly used and accepted are either latex (powderless) or cotton. Avoid any metal to metal contact when handling or storing weights. This will cause scratches that may introduce error. All weight forceps and weightlifters should be either nonmetallic (plastic or wood) or if metal, covered with a soft protective coating or material to avoid scratches.

2. Place the weight or sample near the center of the balance pan. A small offset from center can have a pronounced effect and introduce undue variation.

3. Take special care not to breathe onto the weight or into the balance chamber. Back away from the instrument. This will prevent moisture or any thermal transfer of heat from your breath or body to the balance, the weight, or the sample.

4. Time your measurements. Consistent sample times will provide more consistent measurement.

2 Unpacking and Setup

The balance module, power supply, control module, weighing pan, powder pan and draft shield are packed in a foam support to protect them from shock during shipping and handling. Save and reuse all packing material for future damage-free shipments. Remove the equipment and assemble using the following instructions.
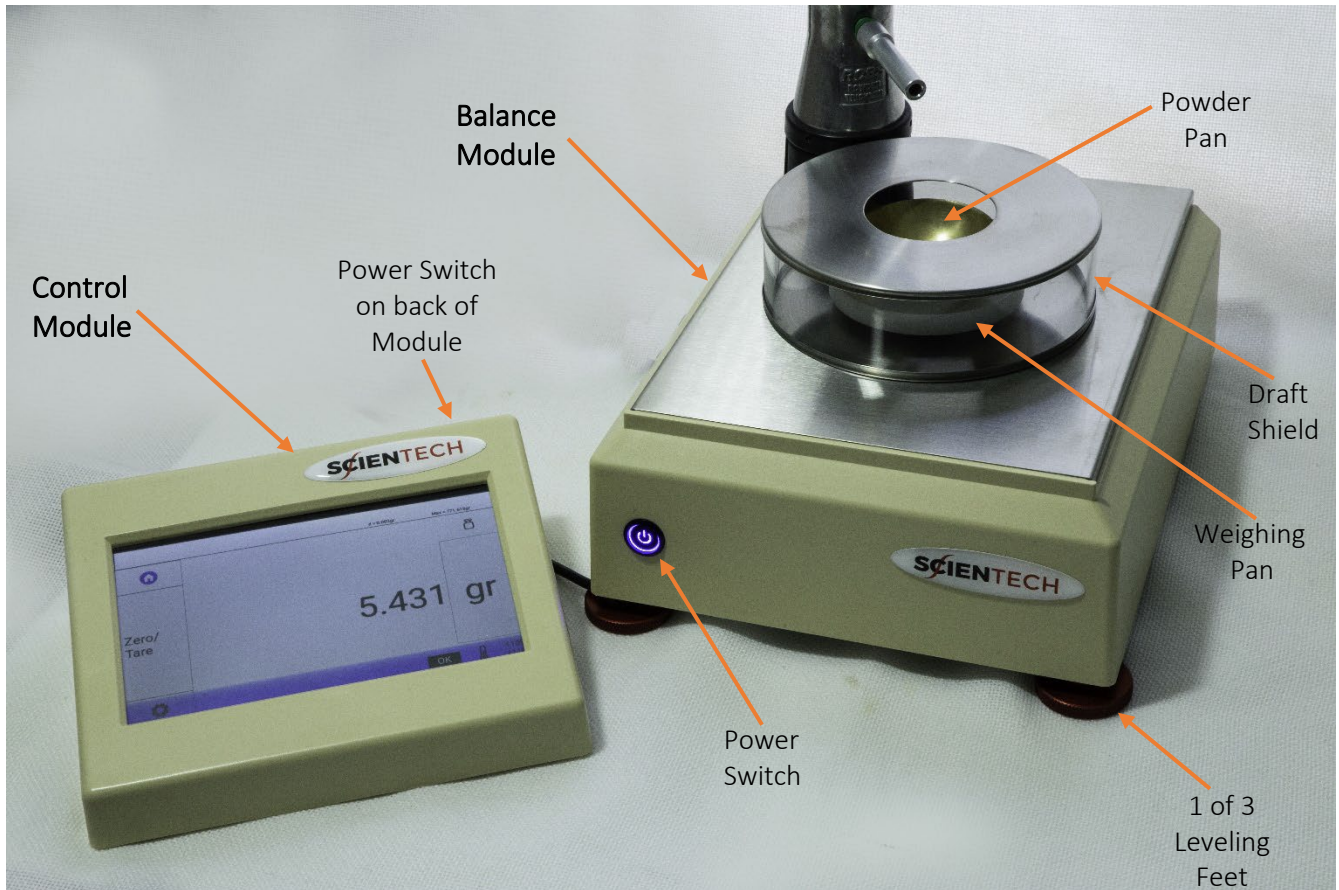

Figure 1. Cabus Packing

Figure 2. Cabus Balance

2.1   Electrical Power Connection

The balance module is supplied with a 100/240, 50/60 Hz automatic switching, remote power supply. This power supply will work with most electrical outlets. However, before making any connections, verify that the power (VAC) requirement shown on the remote power supply is compatible with the AC power outlet to which the balance will be connected. A standard type A wall plug is provided to connect the power supply to an electrical outlet. However, depending on the region of the world the balance will be used, other outlet wall adapters may be required. Please contact Scientech Inc if you require a different wall plug for your electrical outlet.

Note: First plug the round power connector into the balance's rear panel receptacle. Then, plug the power supply into a grounded AC outlet.

Note: Do not alter or bypass the ground plug in any way. Doing so adversely affects the performance of the balance.

Note: Scientech recommends that the balance be always plugged into an electrical outlet. This ensures the balance is always warmed up and ready for use.

The control module gets its electrical power from the balance module. The control module USB cable should first be connected to the USB port on the balance module (see Figure 3).

The balance module may then be connected to the power supply and the power supply plug into an electrical outlet.

Control Module
Power Switch

Control Module
Cable Connects to
Balance Module

Balance Module
Power connection

Balance Module
USB connection

Figure 3. Control Module Power Switch & Balance Module Ports

2.2 Power Switches

Both the control module and balance module have on/off power switches.

2.2.1 Balance Module Power Switch

The balance module power switch is located in the upper left corner of the balance's front panel. When the balance is off, pressing the power switch will light the switch blue as shown in Figure 2.

2.2.2 Control Module Power Switch

The control module power switch is located on the back side of the control module as shown in Figure 3.

2.3 Control Module Startup

The control module employs a balance application running on an Android operating system.

The control module will not work with the balance module if the control module USB cable is not connected to the balance module. The control module communicates with the balance module via the USB cable and not wirelessly. The control module receives its power from the balance module. The balance module does not need to be turned on for the control module to receive power.

The control module also has a battery and will turn on without the balance module if the battery has sufficient power. With the Android operating system turned off, a fully charged control module battery will last about 7 days. The battery allows for the control module to be disconnected for a short period of time so that the Section 2.3.1 does not need to be repeated every time the control module is restarted.

The control module has a sleep mode. In sleep mode, the control module display, speaker, and other processes that are not required to keep apps running are turned off. Sleep mode is important with your balance to prevent screen burn-in. Screen burn-in or ghosting often occurs after letting a device display the same static image for a long time. Persistent images or ghost images may show on the display and becomes visible at all times. The control module uses sleep mode to prevent this from occurring.

2.3.1 Control Module Startup When Control Module Battery Low

If the control module battery drops below 1% charge, the control module will display the no charge battery symbol, or the power level graphic shown in Figure 4 with 0% battery power. In this condition, the Android operating system will not boot up. This may occur after during shipping or if the Cabus balance is not set up soon after receiving the system.
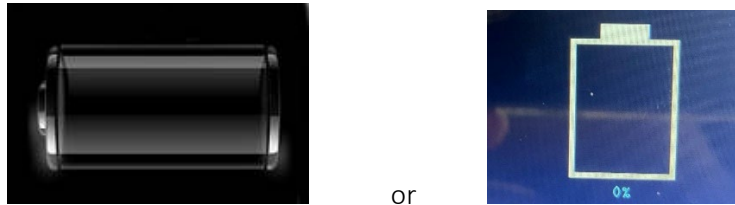
 or

Figure 4. Battery Low Signal

To charge the control module battery, the control module USB cable must be connected to the balance module with the balance module connected to power and the balance module power turned on.

The following steps describe how to open the balance application beginning with the Android boot process.

1. To turn on the control module and launch the Android operating system, press and hold the control module switch for **3 to 4** seconds to boot up the Android operated control module. The Android operating system will require about 30 seconds to complete the boot process. The Figure 5 Android sleep screen will appear at the end of the Android boot process.
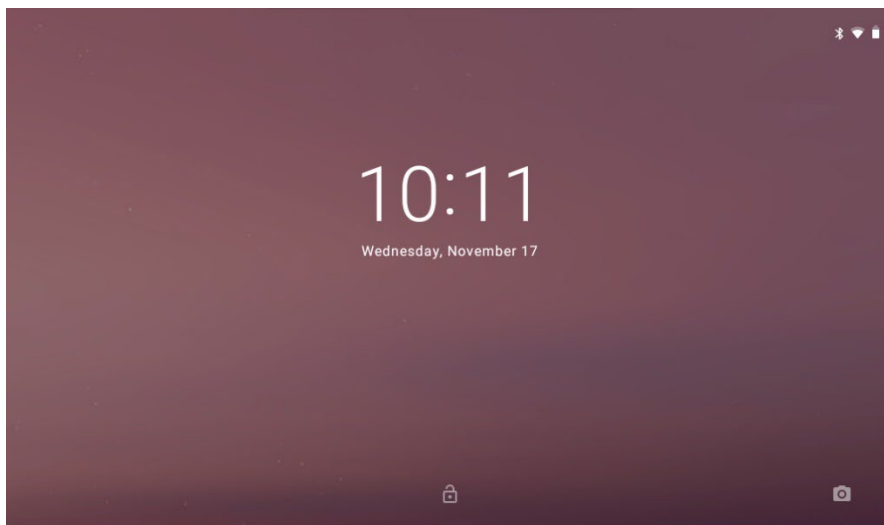

Figure 5. Android OS Sleep Screen

2. Once the Figure 5 screen appears swipe up on the display to open the Android home screen shown in Figure 6.

3. The Cabus Balance application may be opened by selecting the Scientech balance application from the Android home screen.
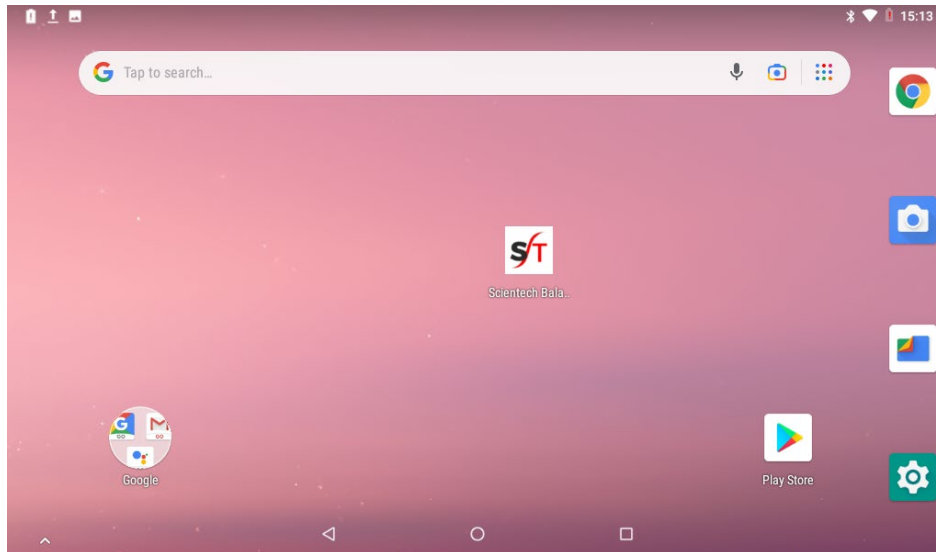
Figure 6. Android Home Screen

4. A USB configuration banner may appear as illustrated in Figure 7. If this banner opens, check the "Use by default for this USB device and then select "OK". This establishes the USB connection between the balance and control module.
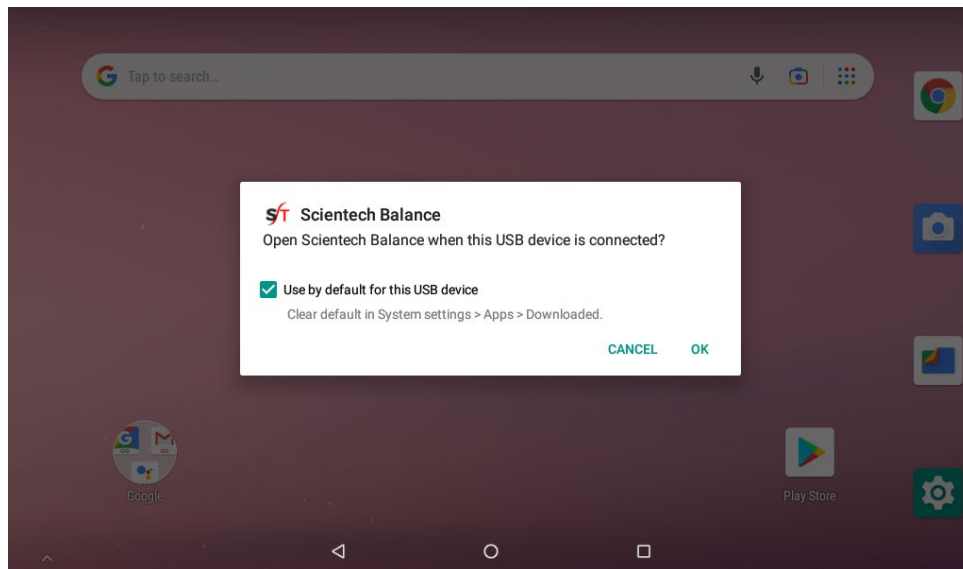

Figure 7 USB Configuration Setting

5. Once the Figure 6 Android home screen opens, the Scientech balance application may also be opened by swiping up on the display to open the apps screen shown in Figure 8 and selecting the Scientech ![S/T] balance app.
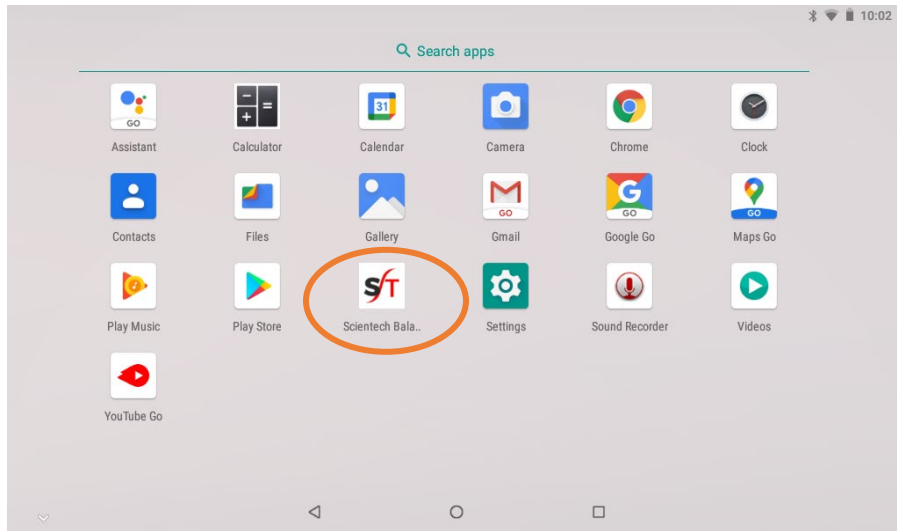
Figure 8. Android Screen Showing Application Menu

6. The balance home screen, shown in Figure 9 will open after a several seconds. Once open, within seconds the control module will connect to the balance module and at that point, be operational.

7. In the lower right-hand corner of the Home screen there is a message "Starting Up". This indicates the balance needs to thermally stabilize or warm up before use. The "Starting Up" message will change to a thermometer icon after the Cabus balance has thermally stabilized as explained in Section 1.1, bullet 4.

Figure 9. Balance Application Home Screen (main Menu)

To avoid repeating Section 2.3.1 steps, it is recommended that the control module remain connected to the balance module so that it has power. Both modules were designed to remain powered on all the time.

2.3.2 Control Module Startup After Initial Setup

After initial Cabus balance setup described in Section 2.3.1, the Android boot process will no longer occur unless the control module is disconnected from the balance module for more than 7 days or the balance module is no longer connected to

power for more than 7 days, discharging the battery. These instructions apply to a control module that has not been disconnected from power.

The display will turn off and go into a sleep mode after 30 minutes of inactivity as described in Section 2.3.

1. With the balance module powered on, if the control module display turns off (i.e., goes into sleep mode) pushing the control module power switch will launch the Figure 10 Android sleep screen.
2. Swiping up on the display will directly open the balance home screen shown in Figure 11 within a second.
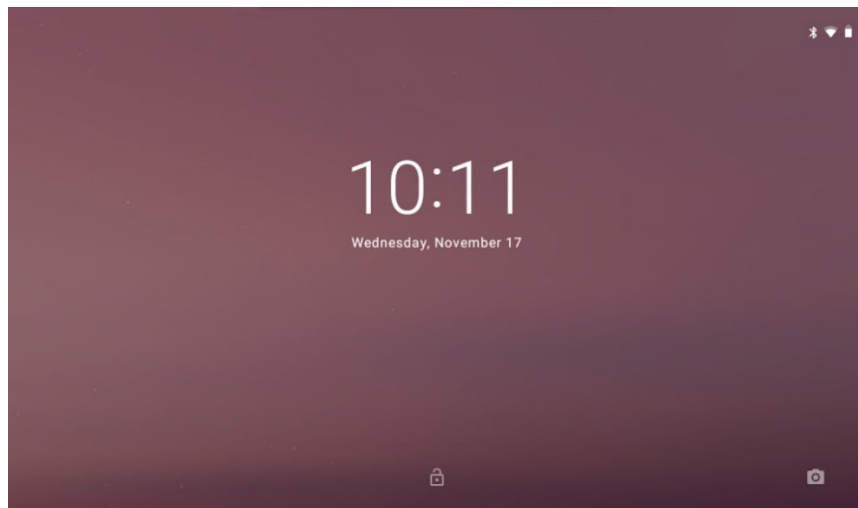
Do not hold the power switch for more than 1 second or an Android operating system banner will open with a choice of "Power Off" or "Restart" as shown in Figure 12. Pushing the power switch a second time will exit this banner and put the display in sleep mode.

If "Power Off" is selected, then the Android operating system will need to be rebooted This is accomplished by pressing the control module power switch for 3-4 seconds. After 30 seconds the Figure 10 screen will appear. Swiping up on this screen will return the display to the balance home screen. It will take about 20 seconds for the Figure 11 balance application to

reload. If the Figure 7 USB configuration page appears, check the box and select OK.
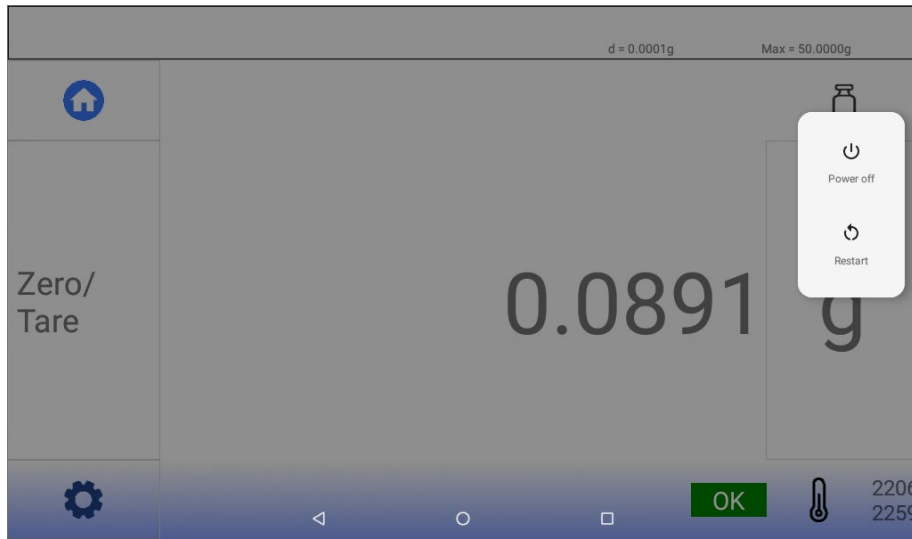

Figure 12. Android Operating System Power Off

If "Restart" is selected from the Figure 12 banner option, the Android operating system will require about 30 seconds to reboot to the Figure 10 Android screen. Swiping up on this screen will launch the balance application after another 10 seconds. If the Figure 7 USB configuration page appears, check the box and select OK.

3   Home Screen "Main Menu" Features

The balance "Home Screen" which is the main menu for the balance is illustrated in Figure 13. The upper bar of the home screen shows two metrology values. "d" is the readability of the balance in grams. The "d" value changes as different levels of precision are selected.

Max is the maximum capacity of the balance in grams. If the maximum capacity is exceeded the error message "Overload" will occur, as shown in Figure 14, alerting that the balance is in an overload condition.
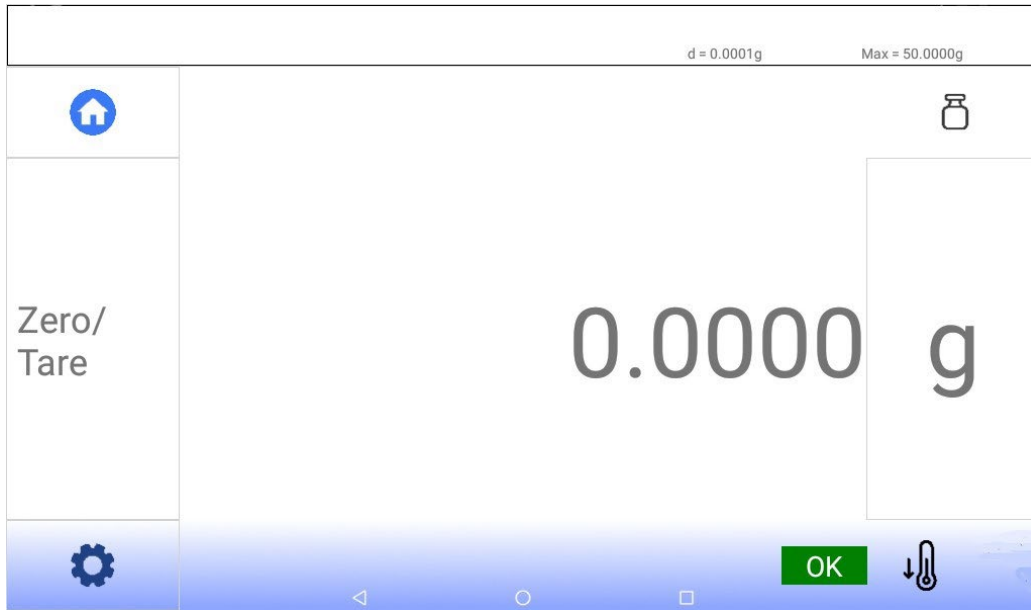
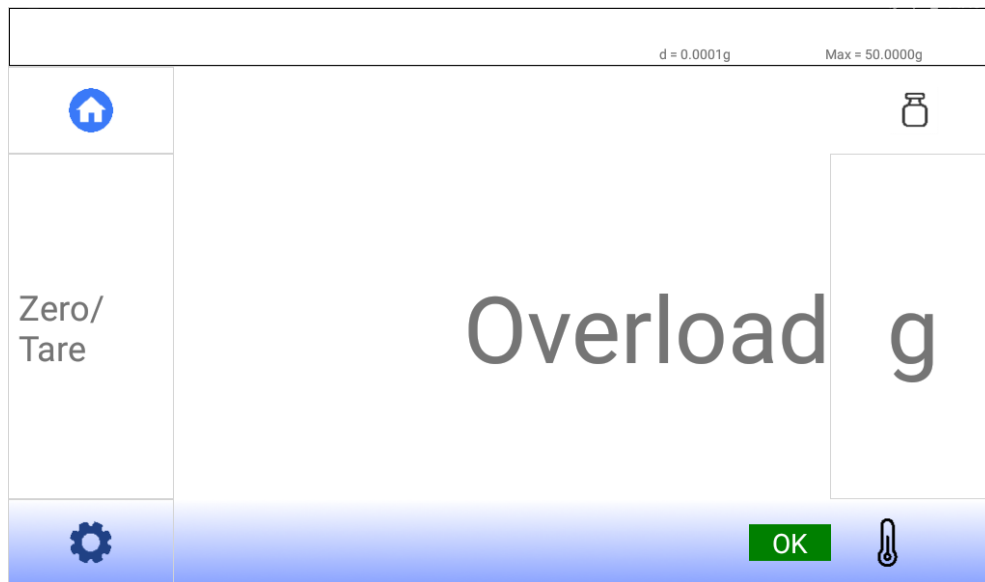Figure 13. Default "Home Screen" or Main Menu

Figure 14. Overload Message if Maximum Weight Exceeded

3.1 Home Icon

3.2 Zero/Tare Banner Area

Pressing the Zero/Tare banner at any time returns the display to zeros. Tared weighing means that the scale can be reset to zero ("tared") with the powder pan on the balance to remove the weight of the powder. So, when using the powder pan that comes with the balance, selecting Zero/Tare will tare or zero out the weight of the powder pan so you only weigh the contents. Note that when a tare weight that has been zeroed out is removed from the weighing pan, a negative reading is displayed. To return the display to zeros, press one of the ZERO buttons.

Pressing the Zero/Tare when not using the powder pan or other weight to be tared, returns the balance to all zeros such as shown in Figure 13. Oftentimes, the balance may show a weight even when there is nothing on the weighing pan such as Figure 11 illustrates. This can be due moisture, dust or other debris collecting on the weighing pan or powder pan, disturbances such as vibrations sensed by the balance, or quick transitions in temperature. It is good practice to zero the balance before each measurement to eliminate this measurement disturbance.

3.3 Weight value display

In Figure 13, the 0.0000 value is the weight measurement value in the precision selected.

3.4 Units of Measure

Pressing the units banner opens the submenu shown in Figure 15 that allows for the selection of the following units of measure: grams (g) or grains (gr). When the submenu opens, touch the units desired.

Figure 15. Selecting the Units of Measure

3.5 OK Icon

The Cabus balance is a high precision balance that measures force. It is therefore sensitive to external forces such as air drafts, vibrations, or shocks (i.e., dropping heavy item next to the balance). To assist balance users, Scientech added a green "OK" graphic as shown in Figure 16 on the home screen to provide an indication as to whether the balance is experiencing external forces that may interfere with measurements.

If the green "OK" does not appear at all or flickers on and off frequently, then that is an indication that the environment that the balance is being used in is not ideal for precise measurements. Reference Section 1 for mitigation steps to improve the environment.

Ideally, measurements should be made when the green "OK" graphic appears. However, measurements may still be made if the green "OK" graphic is not showing. It may take longer for the measurement value to settle to a value. This is more noticeable at high precision settings. The lower the precision setting, the quicker the measurement value will settle to a value.
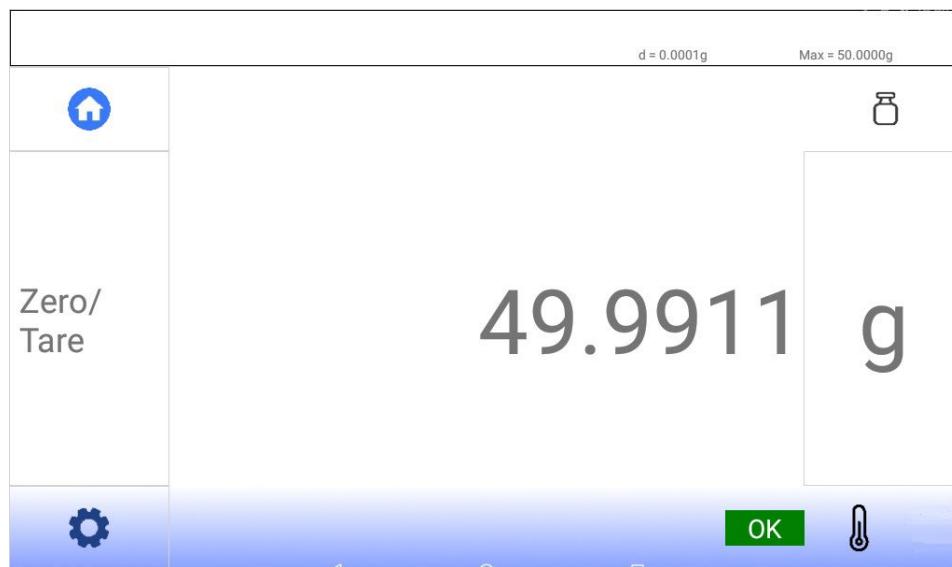

Figure 16. OK and Thermometer Status Graphics

3.6 Thermometer Icon

The thermometer icon shown in Figure 16 in the lower right next to the green "OK" provides an indication of thermal stability inside the balance sensor. When the balance is first connected to power and turned on, the thermometer icon is replaced with "Starting Up" message as shown in Figure 9. When the "Starting Up" message appears, the balance is not ready for use.

As the balance thermally stabilizes the "Starting Up" message is replaced with the thermometer icon. There may be an up arrow or down arrow to the left of the thermometer icon indication whether the balance sensor temperature is increasing ↑🌡 or decreasing ↓🌡 . After thermally stabilizing, the arrows disappear, and the thermometer icon appears by itself such as shown in Figure 16 indicating the balance is ideal for operation.

The balance has software that provides temperature compensation. The arrows next to the thermometer provide indication that temperature compensation is taking place.

3.7 Calibration Icon

Calibration of the balance should always be performed at the location where it is being used and only after leveling the balance. Perform calibration every time you move your balance. Calibrate the balance using an external calibration weight. Either a **50-gram** weight or **10-gram** weight with the appropriate weight tolerance may be used for calibration. The balance will detect the target weight.

Lower calibration weight tolerances produce more precise calibrations. An International Organization of Legal Metrology (OIML) Class E2 calibration weight or better is required for calibrating the Cabus balance which has readability of 0.1 mg. A **50-gram** Class E2 analytical weight with a weight tolerance of ±0.10 mg may be purchased from Scientech. Alternatively, a **10-gram** Class E2 weight with a tighter weight tolerance of ±0.06 mg may also be purchased from Scientech.

Calibrations must be performed in the units of grams. If you are weighing in grains, the balance will automatically convert to grams if the calibration icon is selected. To perform a calibration:

1. Select the calibration weight icon from the Figure 13 home screen. The calibration submenu shown in Figure 17 will open. "Target" is the calibration weight that should be used. "Reading" is the measurement.
2. The "Calibrate" banner is gray to begin with and until a calibration weight has been placed on the weighing pan. Target has no value until a calibration weight is placed on the weighing pan.
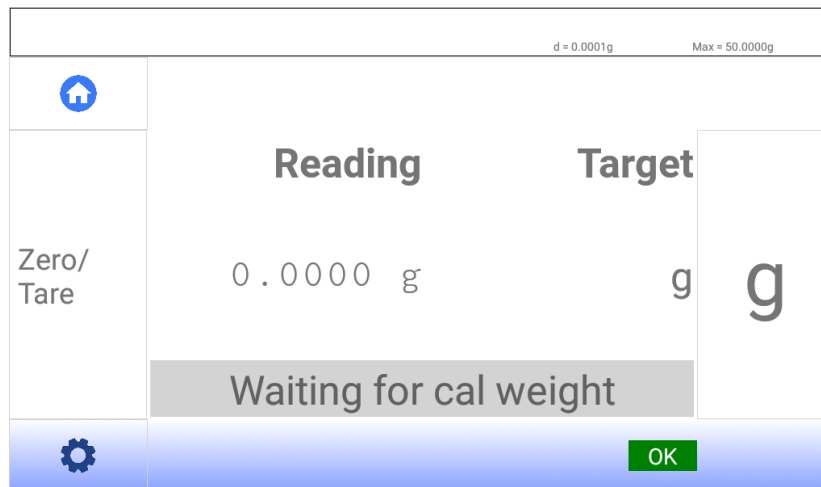3. Zero the balance.

Figure 17. Start of Balance Calibration

4. Add either a **50 gram** or **10 gram** calibration weight to the weighing pan. Both **50 gram** and **10 gram** calibration weights are default weights.

5. The message "Waiting on stable weight" will appear during calibration as shown in Figure 18.
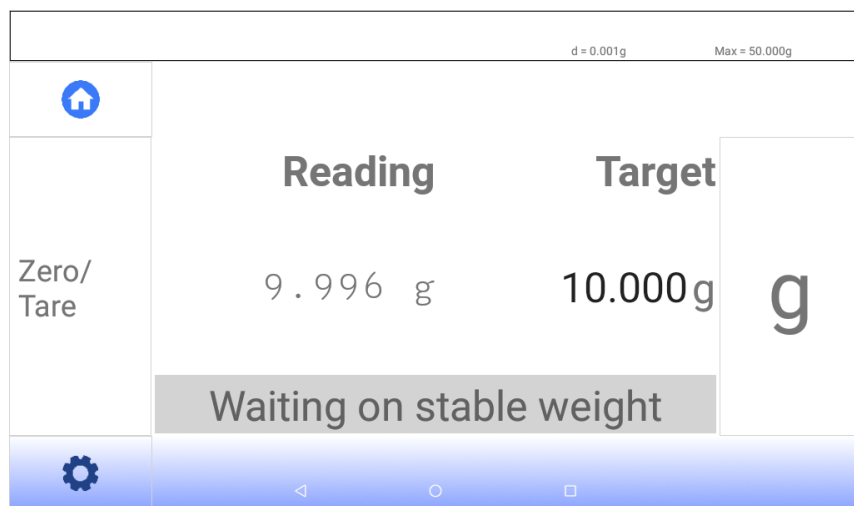
d = 0.001g   Max = 50.000g

Reading   Target

Zero/
Tare   9.996 g   10.000 g   g

Waiting on stable weight

Figure 18. 10 Gram Calibration Weight Placed on Weighing Pan

6. Wait for the "Waiting on stable weight" to turn to a "Calibrate" banner. When the "Calibrate" banner turns green, that indicates calibration is completed as shown in Figure 19 for a 10 gram calibration weight or Figure 20 for a 50 gram calibration weight.
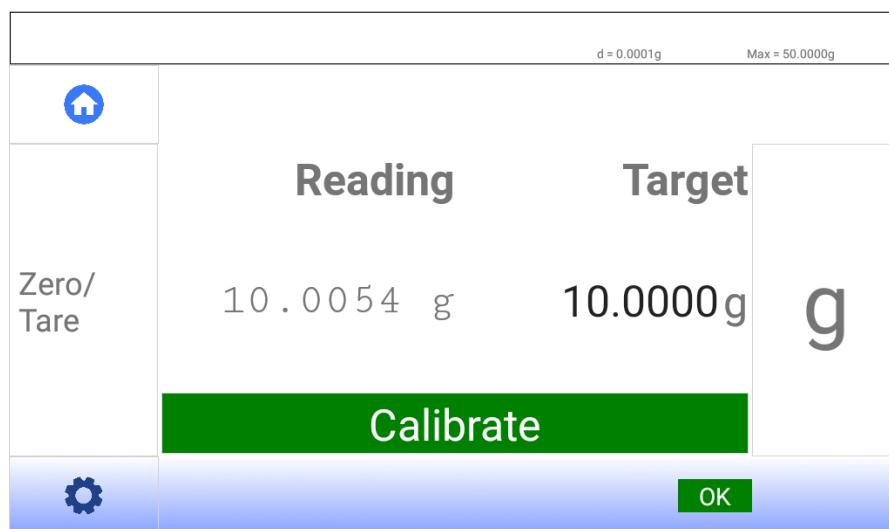

d = 0.0001g   Max = 50.0000g

Reading   Target

Zero/
Tare   10.0054 g   10.0000 g   g

Calibrate

OK

Figure 19. Calibration Complete Using 10 Gram Weight

d = 0.0001g   Max = 50.0000g

Reading   Target

50.0133 g   50.0000 g   g

Zero/Tare

Calibrate

OK
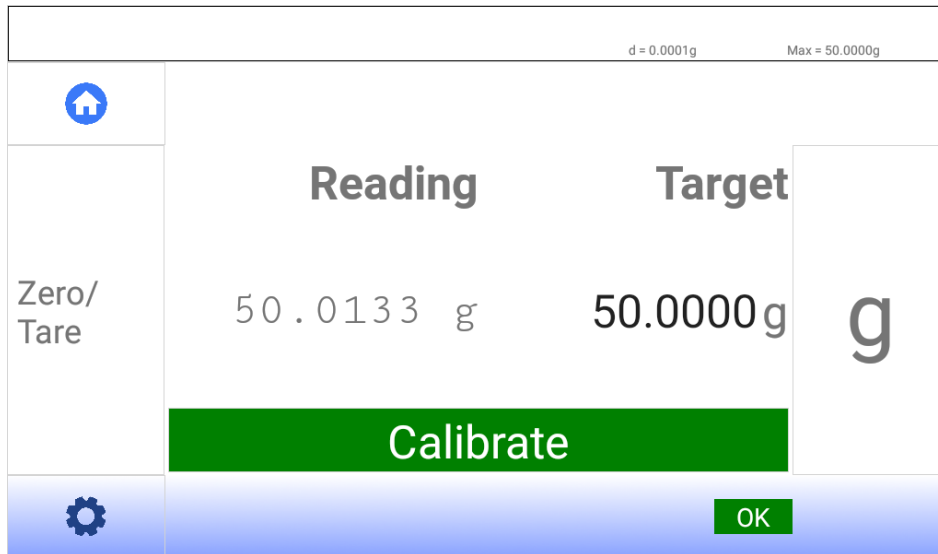
Figure 20. Calibration Complete Using 50 Gram Weight

7. After the "Calibrate" banner turns green, the calibration weight may be removed.

If an alternative calibration weight other than a **50 gram** or **10 gram** weight is used, the balance will detect this and provide a message "Mismatched target weight". In the example shown in Figure 21, a 20 gram calibration weight was used.

d = 0.001g   Max = 50.000g

To Enter Alternative Calibration Weight
Touch Here

Reading   Target

19.523 g   10.000 g   g

Zero/Tare

Mismatched target weight

OK
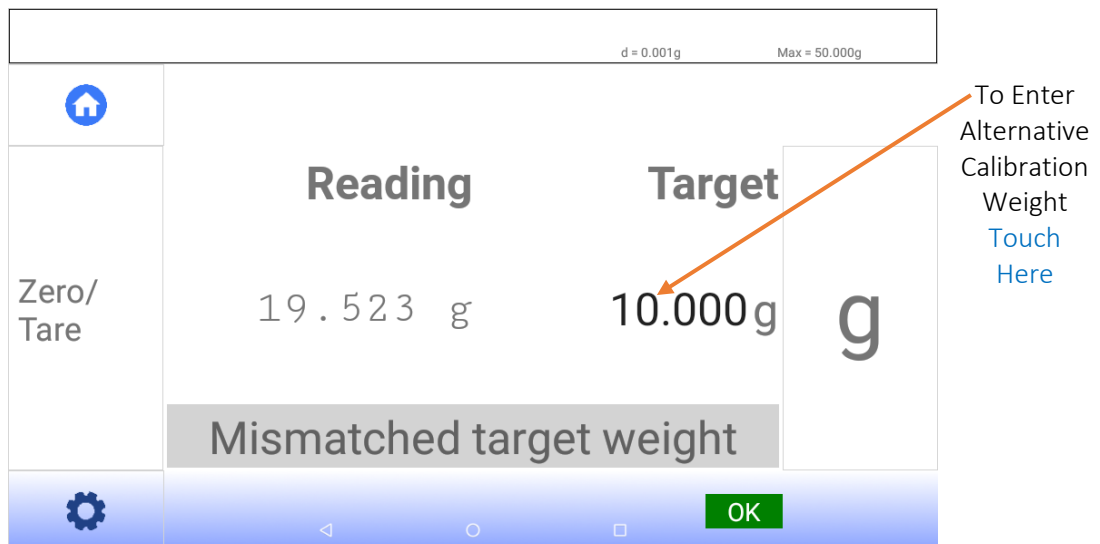
Figure 21. Example of Alternative Calibration Weight is Used

Select the "Target" weight value shown in Figure 21. This will open the Figure 22.
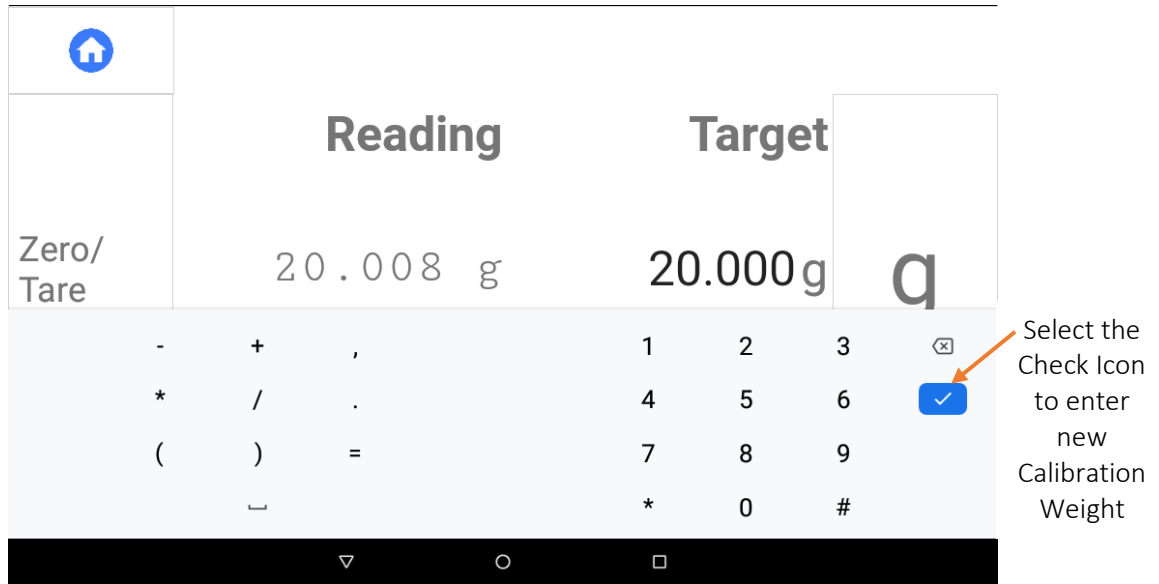
Figure 22. Screen to Enter Alternative Calibration Weight

Select the "Target" weight value and then use the numerical keys and back space to enter a new calibration weight value. Figure 22 shows that a 20 gram calibration weight was entered.

When the alternative calibration weight value is entered correctly, select the "✓"icon to enter the value.

The Figure 23 screen will appear. The "Reading" shows the actual weight of the calibration weight used which rarely is exactly the calibration value desired.

Select the green "Calibrate" ribbon to calibrate the balance. The Figure 23 screen with be replaced with the Figure 24 screen showing that calibration was performed to the alternative weight.
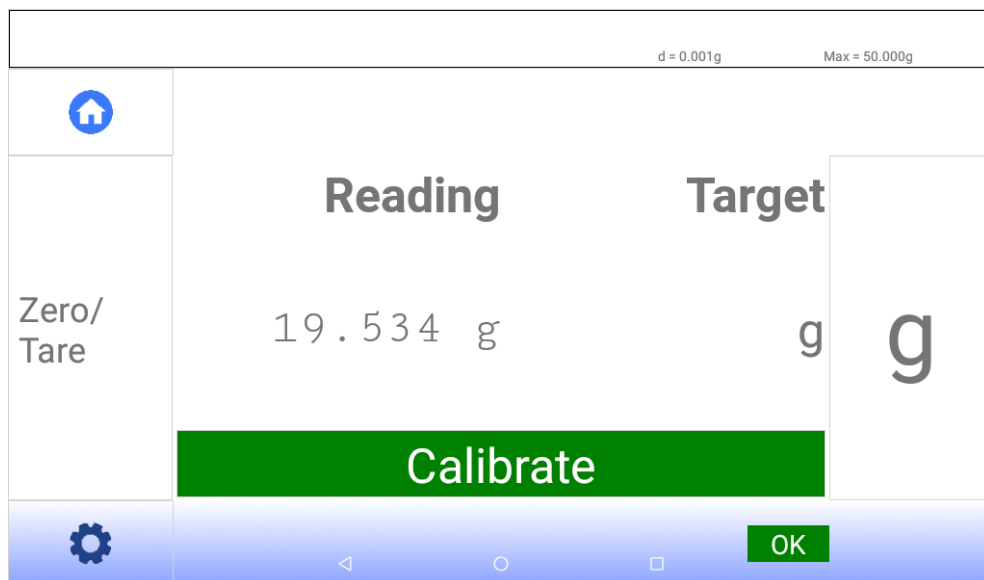
Figure 23. Ready to Calibrate Balance with Alternative Calibration Weight
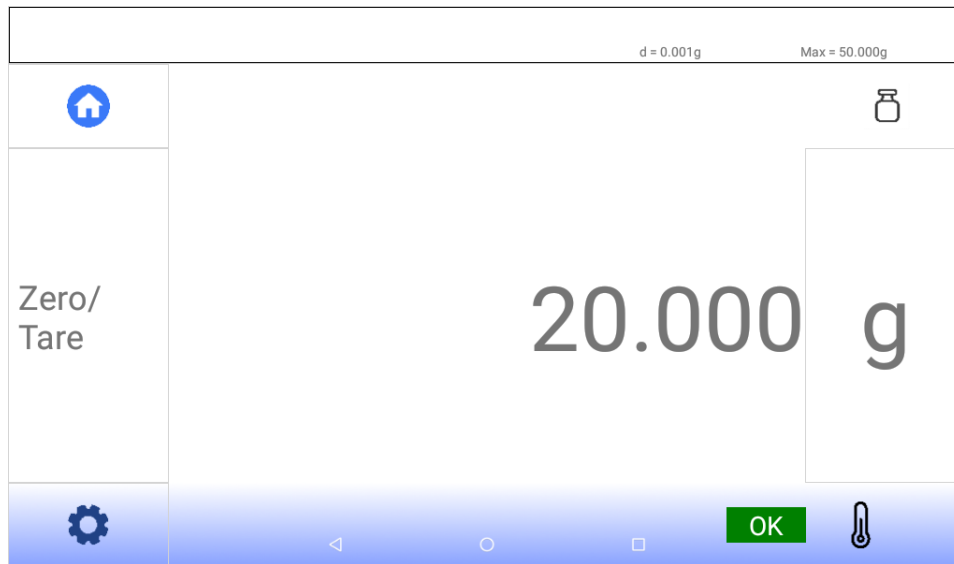
Figure 24. Balance calibrated with Alternative Calibration Weight

Calibration weights between 10 grams and 50 grams may be used.
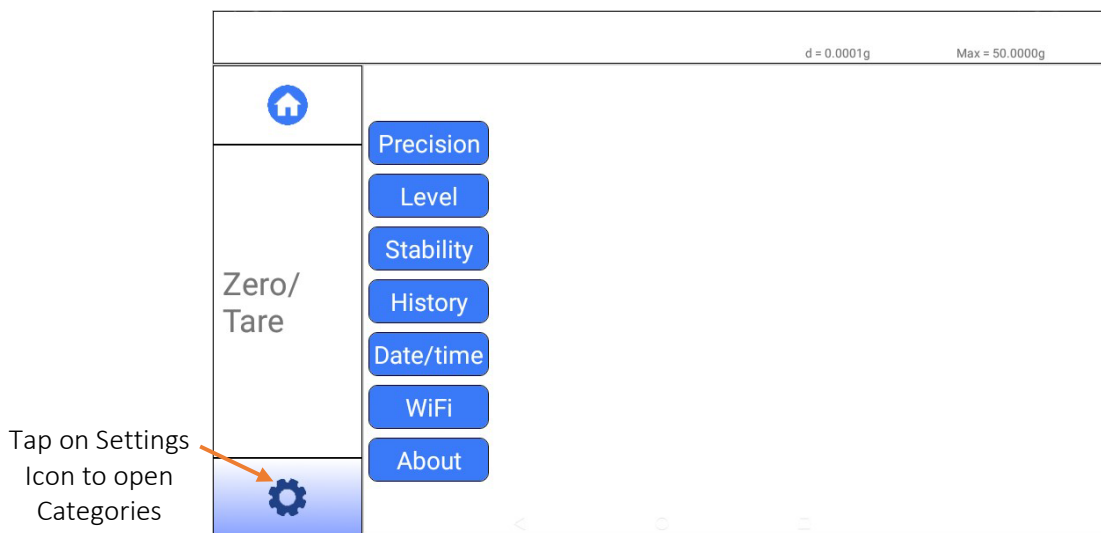
3.8   Settings Icon

Figure 25. Submenu Banners Under Settings

4   Settings Submenu's

After the balance has been plugged in and turned on, allow it to warm up. Then follow the leveling instructions to level the balance followed by the calibration instructions to calibrate the balance.

4.1   Level the Balance

If the balance module is placed on a level surface, the balance module should then also be level. Since level surfaces are the exception, the balance module has leveling feet that may be manually adjusted and the control module has a leveling setup mode accessed from the main menu by selecting settings icon and then selecting "Level" shown in Figure 25. The leveling application shown in Figure 26 will open.

The balance module is leveled by adjusting the three balance feet so that the bubble is in the center of the target. To the right of the bubble level there are messages that guide which foot to adjust.

Adjust (turn) the balance module front feet (shown in Figure 1) to level the balance by centering the control module bubble in the level indicator shown in Figure 26. Adjust the single rear foot to level the balance from font to back. Turning the foot clockwise raises that side of the balance and an opposite adjustment lowers it. When properly adjusted the bubble will be in the center of the Figure 26 target.
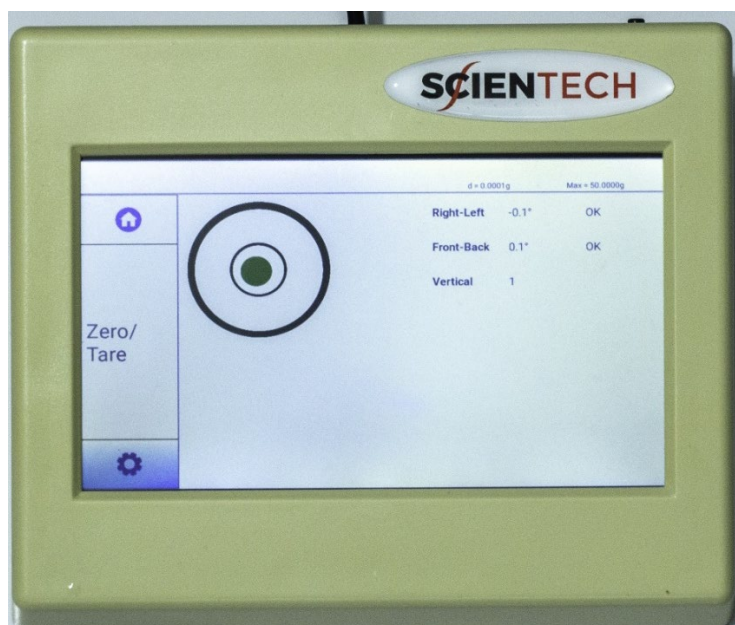

Figure 26. Leveling the Balance Module

4.2   Precision Capabilities

There are four precision level settings accessed from the main menu by selecting settings icon and then selecting "Precision" shown in Figure 25. Depending on the units selected in Section 3.4, a different precision setting submenu will open as shown in Figure 27 for grains or grams. As more precision is selected, the balance will appear to be more sensitive to external environmental force interferences in which 10^{-3} or 10^{-4} units will display a value. Use "Zero/Tare" to zero these values before a measurement. For good weighing practice, do not use more precision than required for the application. This will allow the

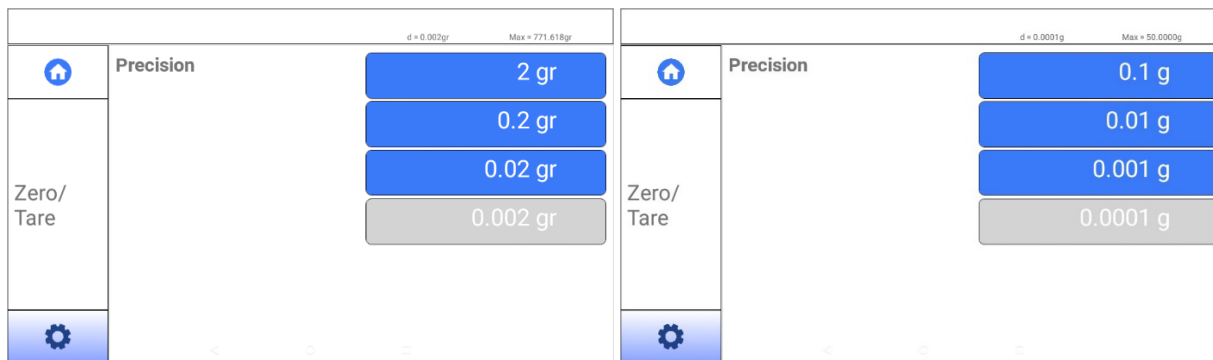balance to settle on a measurement value faster if the Section 1 guidelines are practiced.

Figure 27. Precision Settings in Grains or Grams

4.3   Stability Indicator

As specified in Section 3.5 the Cabus balance is a high precision instrument based on sensor technology used in laboratories for more accurate measurements. If the green "OK" does not appear or flickers off for long durations or frequently, then that is an indication that the environment that the balance is being used in is not ideal for precise measurements. Consequently, Scientech has provided a tool called "Stability" to assist in identify the level of environmental noise that may affect the balances measurements. Stability is accessed from the main menu by selecting settings icon and then selecting "Stability" shown in Figure 25.

The level of stability is displayed in a color bar graphic as shown in Figure 28:

Red   Poor environment for weighing

Orange   Environment needs improvement

Yellow   Satisfactory environment

Green   Excellent environment

The bar graphic is dynamic, continuously sensing the environment. As a result, the bar graphic is constantly changing amplitude as background environmental forces are sensed. A "Stability Noise" value is also displayed along with the "Lock Limit" set at the factory for as the upper reference for an ideal environment.
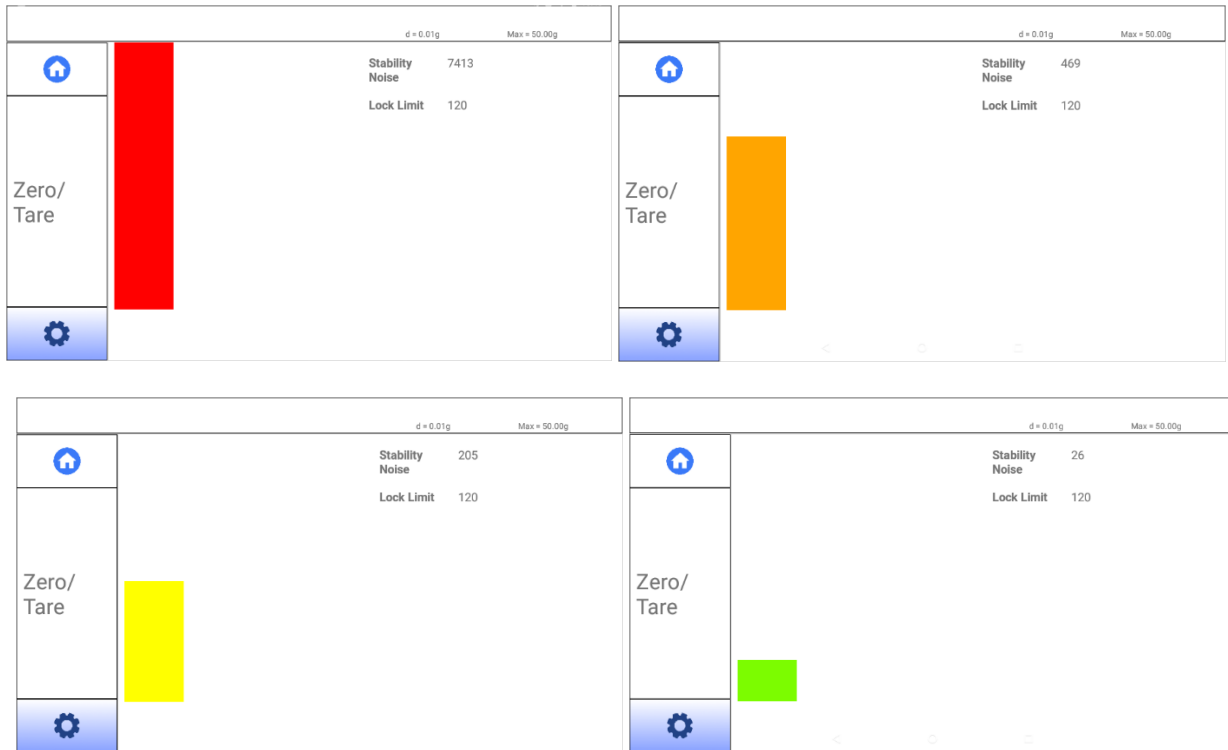
Figure 28. Environment Stability

The stability indicator should be used along with Section 1 guidelines to identify environmental sources of noise and mitigation steps to improve the stability.

4.4 History

History provides a list of measurements made within the last 8 hours as shown in the Figure 29 left hand submenu screen. This may be used to compare measurement values made during a period of time. Selecting short history will display the last three, most recent measurements. Selecting clear all will clear all stored measurements as shown in the right hand Figure 29 submenu screen.
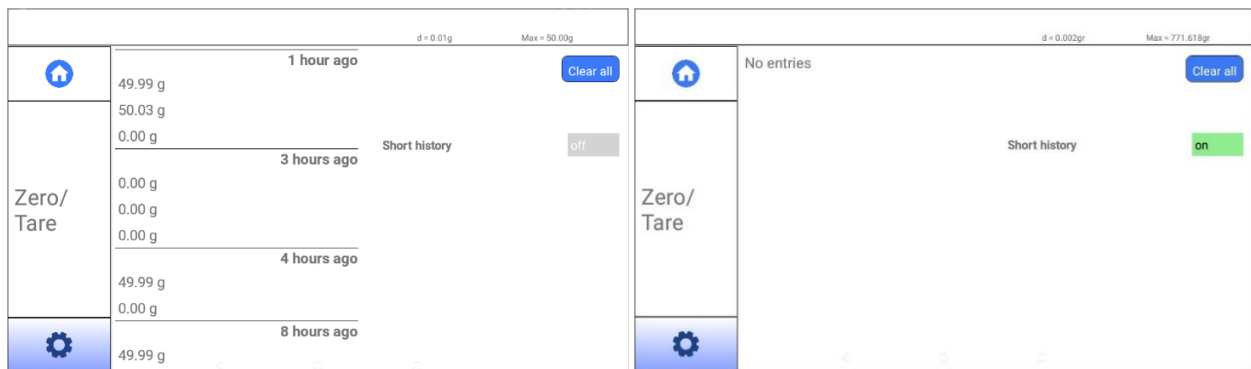
Figure 29. History of Measurements

4.5 Date/Time

Selecting Date/Time from the Settings submenu opens the Date & time submenu shown in Figure 30 and allows for configuring the date and time. If control modules wireless is on, the date and time can be automatically set from the network.

Date and time can be set manually by touching the "Set date" or "Set time" and using the popup submenu adjust them. Figure 31 shows the popup menu for setting the date as an example. Time zone may be set by touching "Select time zone" and scrolling up or down to find the desired time zone. The Date/Time submenu also allows setting a 12-hour or 24-hour time format.
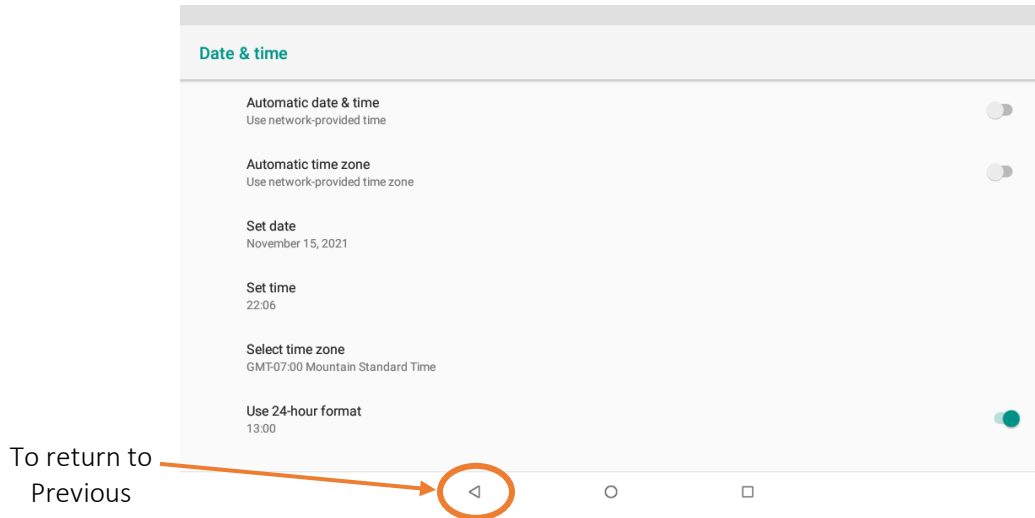
Figure 30. Setting Date and Time
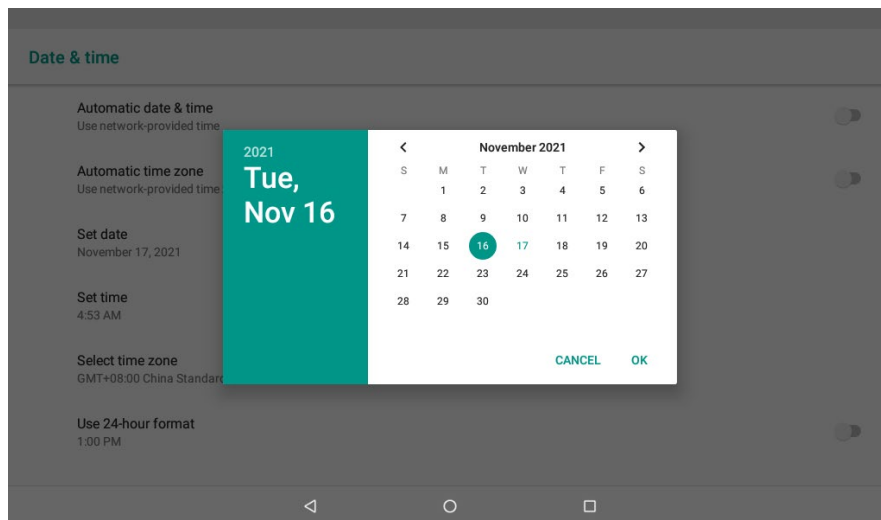
Figure 31. Popup Menu for Setting Date

To return to the Settings submenu, tap in the backwards arrow at the bottom of the screen. Note that selecting the circle at the bottom of the screen will exit the balance application to the Android home screen shown in Figure 6. If this happens, swipe up on the display and select the balance application shown in Figure 8.

4.6 About

From the Figure 25 Settings submenu, selecting the "About" banner opens a submenu that provides information about the balance as shown in Figure 32. The serial number and model number are the most important information on this submenu. This will be required when contacting Scientech for product support. Scientech contact information is also provided on this page.
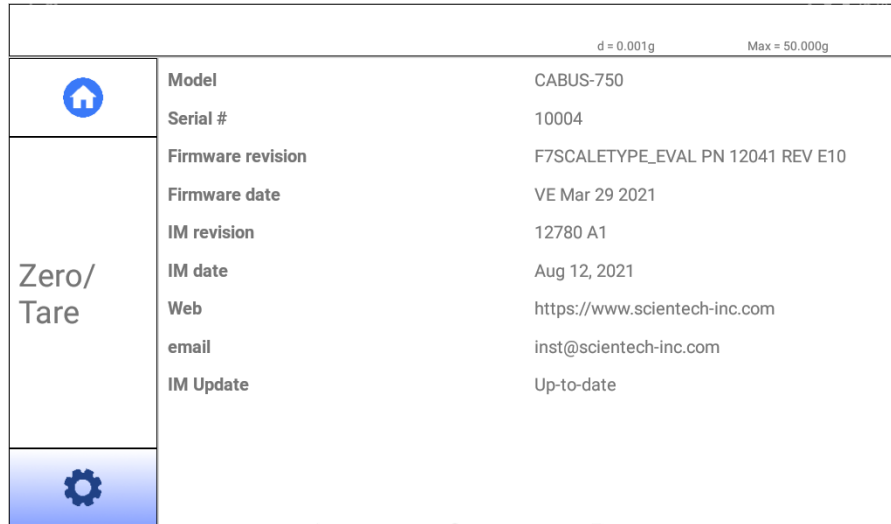

Figure 32. About Submenu

Updates to the control module software are also available through this page. Wi-Fi is needed to both check for an update as well as download and install an update, if one is available. The control module has IEEE 802.11n wireless capability.

To set up a wireless connection, access to the control module WiFi settings may be accessed from this "About" page by selecting "Wifi Settings" shown in Figure 33.
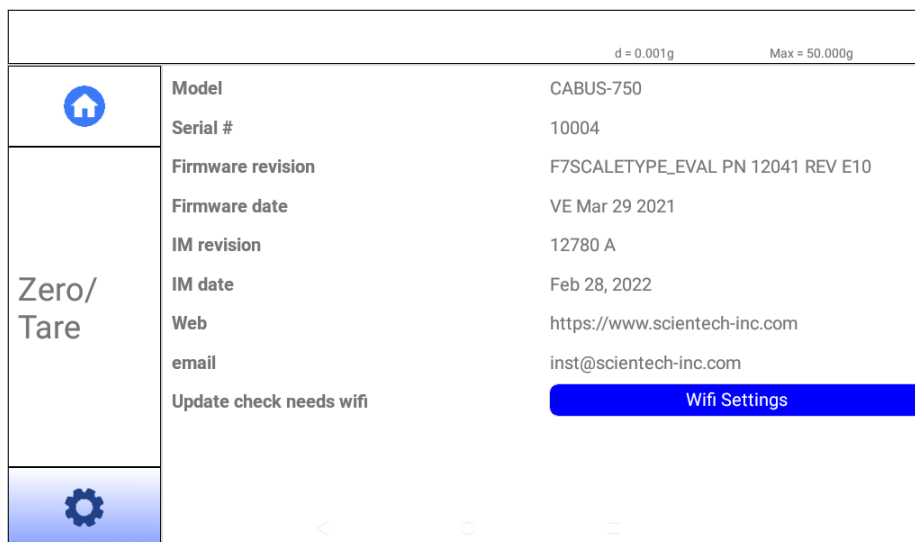
Figure 33. Access to Control Module WiFi from About Page

Selecting "Wifi Settings" will open up the control modules WiFi page shown in Figure 34.
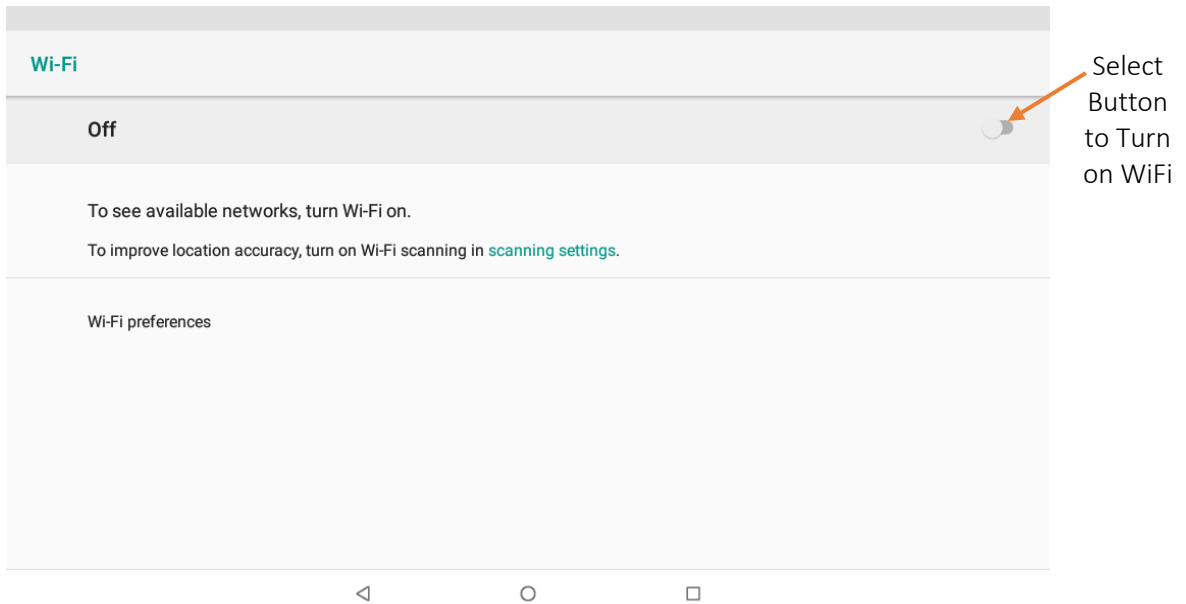
Select Button to Turn on WiFi

Figure 34. Control Module WiFi Activation Page

Selecting the button on the WiFi page will activate the wireless radio and open the Figure 35 list of available wireless networks available to connect the control module. From this list, select the wireless network to connect too.
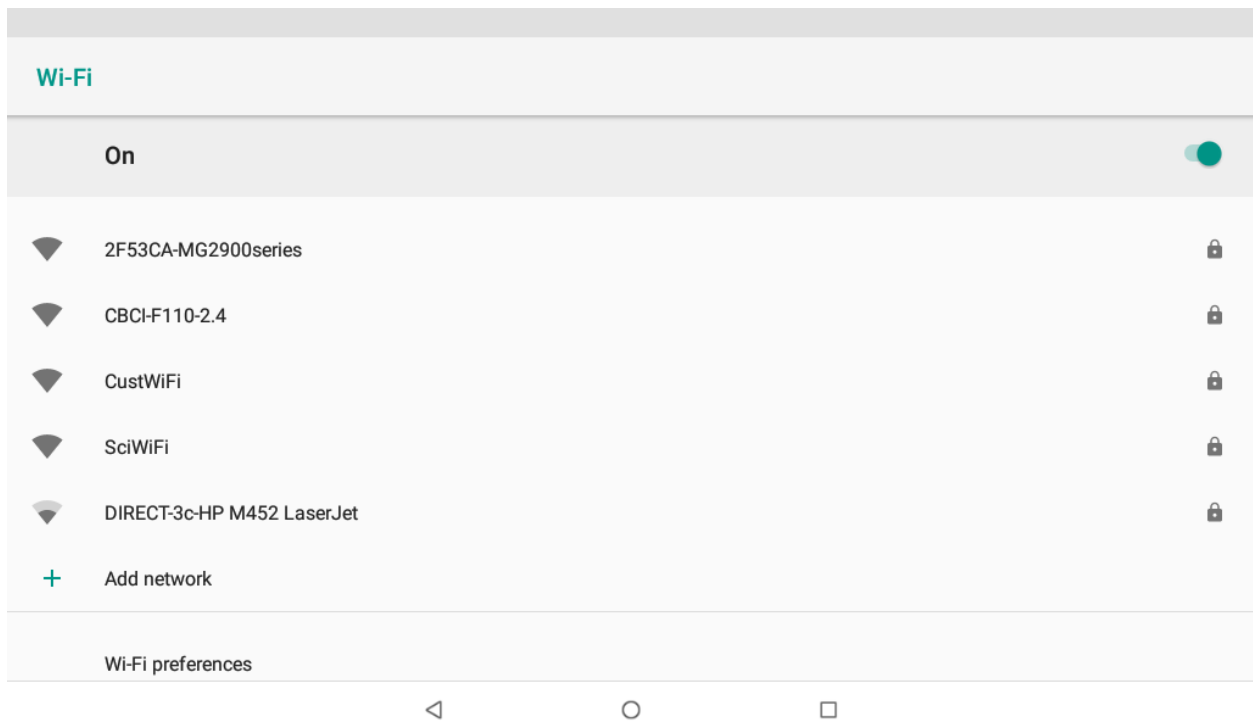

Figure 35. After Turning on WiFi, A List of Wireless Networks Shows

From the Figure 35 list, Scientech's wireless network, SciWiFi, was selected as an example of a secure network requiring a password. Selecting a secured wireless network brings up the Figure 36 page to enter the password. Select the check icon to enter the password.
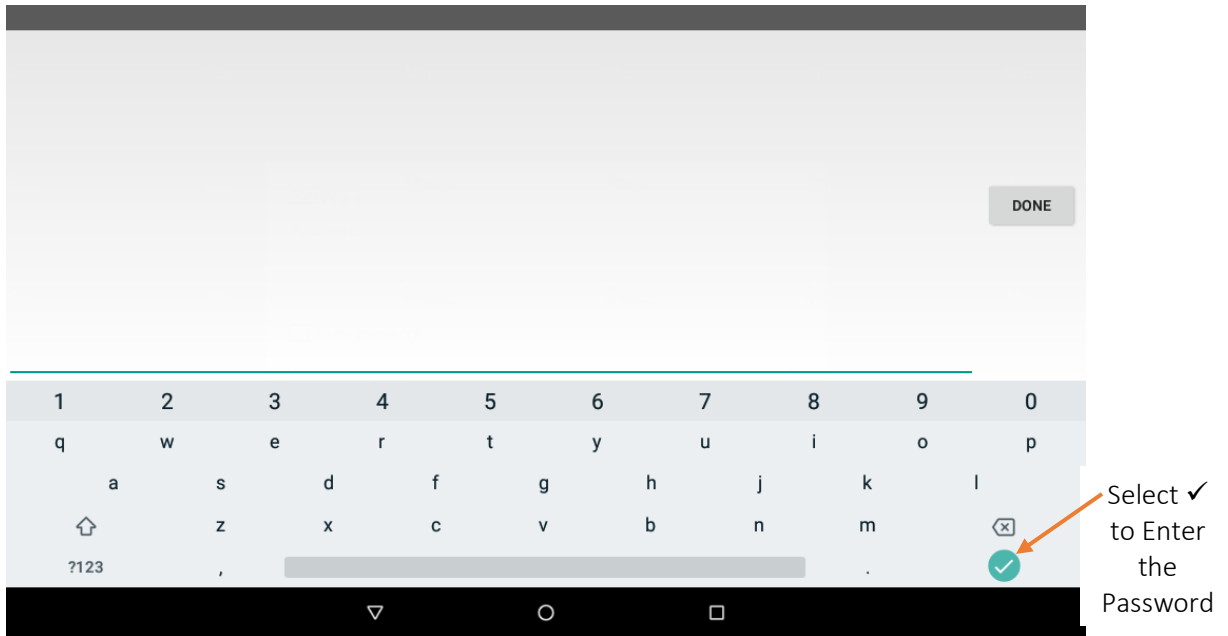
Figure 36. Enter Wireless Network Password Using Keypad

If the correct wireless network password was entered, Figure 37 will appear showing that the control module was successful connected to the wireless network. Figure 37 shows that the control module was connected successfully to the "SciWiFi" wireless network.
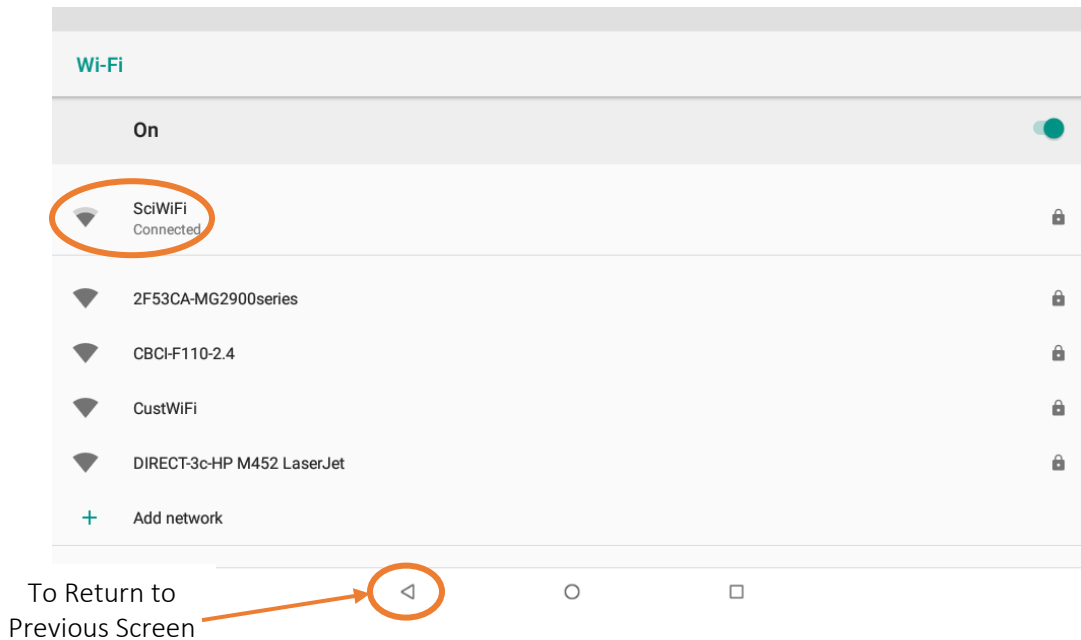

Figure 37. Successful Connection to Wireless Network

Selecting the "Return to Previous Screen" button will return to the "About" page. Shown in Figure 38.
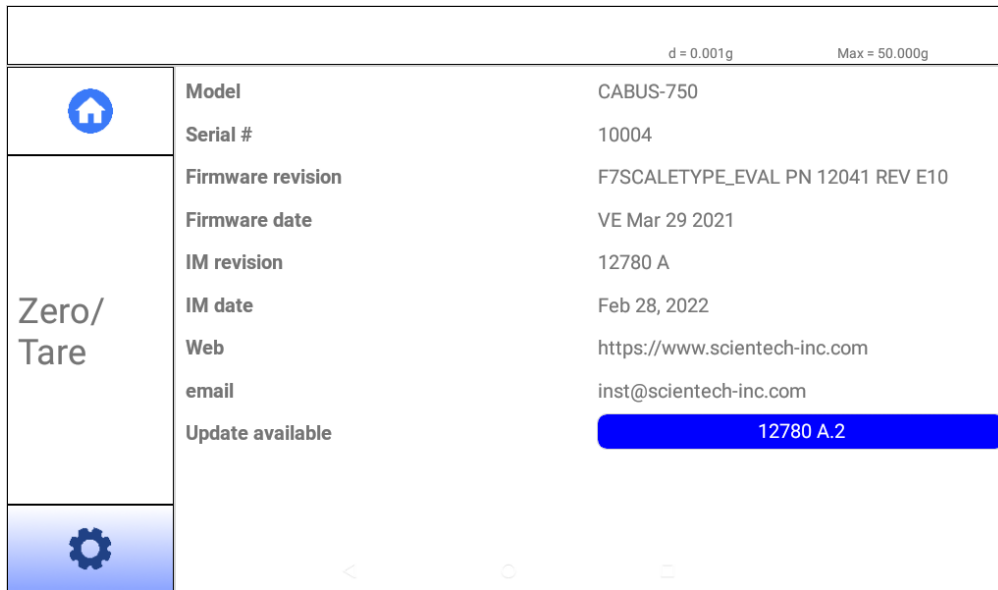
Figure 38. About Page Showing Control Module has Software Update Available

As an example, Figure 38 shows that a software update "12780A.2" is available for download. It is recommended to update the control module to ensure that the Cabus balance functions correctly. Software updates may contain updated features. Some software updates may also contain bug fixes for the control module app.

Selecting update by touching the blue banner will initiate the download process. The Figure 39 screen will appear on the control module.

Figure 39. Control Module Software Update Downloading

As part of the download process, the current "Scientech Balance" App will need to uninstall first. Therefore, when the Figure 40 popup screen appears, select "OK".
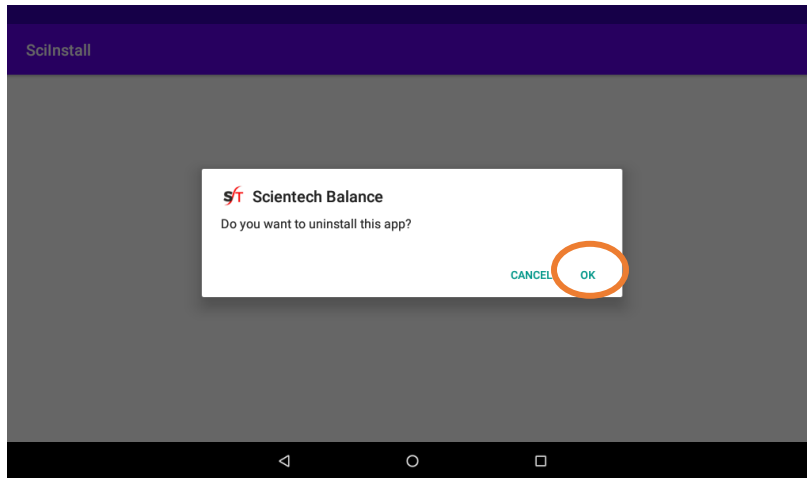
Figure 40. Uninstall Current "Scientech Balance" App

Before the App download starts, the Android Operating System will generate the Figure 41 popup screen. Select "Settings". Select the button for "Allow from this Source".
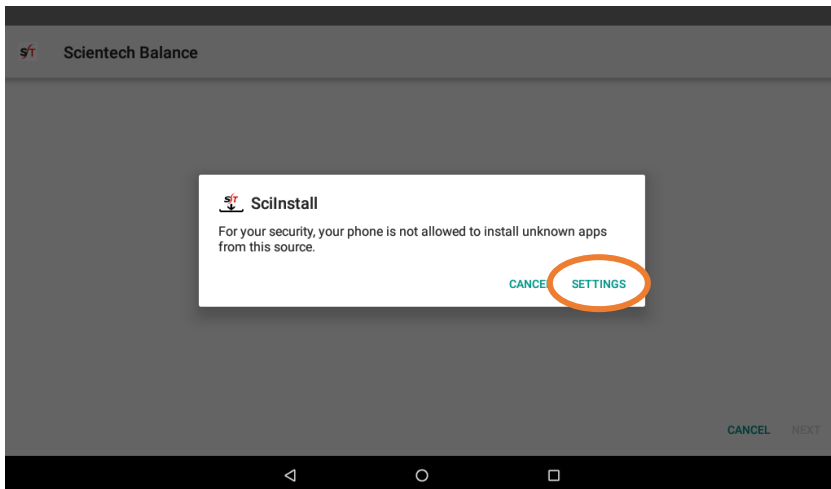

Figure 41. Android Popup "Scientech Balance" App
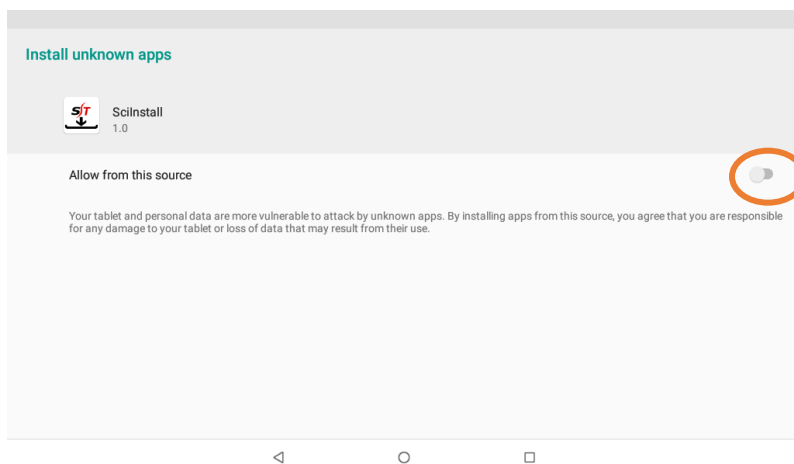

Figure 42. Select the "Allow from this Source" Button

Now the control module is ready for installation of a software update. Selecting "Install" on the Figure 43 screen will complete the download of a the "Scientech Balance" App.
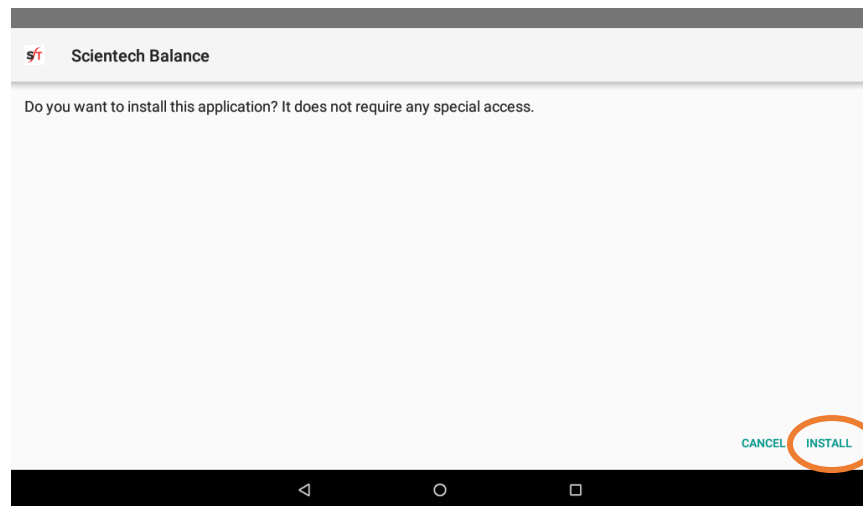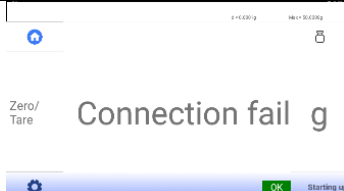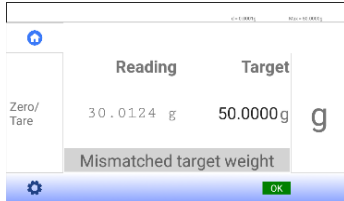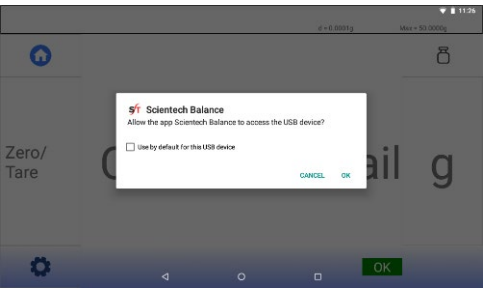

Figure 43. Select "Install" to Complete Download of "Scientech Balance" App

Depending on the wireless network speed, the download should occur in less than 1 minute. When the download has completed, the Control Module will open to the Figure 13 "Home Screen" and the balance is ready for use.

5   Troubleshooting Guide:

Problem	Possible Cause	Possible Solution
The display does not turn on	• Control module not powered on • Control module not connected to balance module • Control module battery <1% • No power from AC outlet • Power supply failure, balance module	• Press control module On/Off switch • Connect control module USB cable to balance module USB connector • Connect control module to balance module & let battery charge for 30 minutes • Change AC outlets • Verify 5 VDC out of power supply
"Overload" appears in display	• Maximum capacity exceeded	• Weigh sample in smaller increments
The display **OK** does not stay on	• Drafts (air currents are present) • Vibrations are present	• Use draft shield with lid, relocate balance • Use Stability indicator to identify if vibrations are present, remove vibration source
Weight readings are incorrect	• Balance is out of calibration • Balance is not level • Display was not zeroed before weight was placed on pan • Object being weighed is touching draft shield	• Recalibrate balance using correct calibration weight • Level balance using Leveling application • Press Zero banner before weighing • Reposition object
Display shows rapidly fluctuating values	• Weighing pan not in place • Drafts or vibrations present	• Ensure weighing pan is properly installed • Isolate or relocate balance
	• Control module USB cable not connected to balance module USB port • Balance module power turned off	• Make sure USB cable is properly seated in balance module port • Push balance module power switch to turn on
Calibrate banner does not go green, "waiting on stable weight" 	• Environment may be unstable • Calibration weight is incorrect	• Use draft shield during calibration • Relocate balance to remove influences of air drafts or vibrations • Reference "Will not Calibrate"below
Will not Calibrate, "Mismatched target weight" 	• Calibration weight is incorrect	• Use calibration weight within 10 to 50 grams and make sure the calibration weight is in grams, not other units • If not using recommended 10- or 5-gram calibration weight, ensure that correct weight of calibration weight was entered
Starting Up does not change over to thermometer icon	• Balance not sufficiently warmed up enough for calibration or weighing	• Allow the balance module to warm up for a longer period of time

| Screen frozen, or will not display weight | • Scientech Balance App needs to be restarted | • Push control module power switch and hold for ~2 sec. When the popup appears select "Restart".
• During restart, the popup box will appear
• Check the "Use by default" box and select OK and the balance main menu will open |
| Other issues? | • Service may be required | • Call Scientech at (800) 525-0522 or (303) 444-1361 or email us at inst@scientech-inc.com |

6   Limited Warranty:

Scientech warrants and represents that this balance will be free from defects in design, materials and workmanship and conform with applicable Scientech product specifications for a period of three (3) years. The product warranty period begins on the date of shipment from Scientech. Scientech warrants that its products shall conform to applicable Scientech specifications and drawings and will meet all the functional and performance requirements when properly installed, operated, and maintained in accordance with this operating manual. Warranty does not extend to any Scientech products that have been subjected to misuse, abuse, or accidents, or improper installation, calibration, maintenance, or applications, repaired by unauthorized personnel, or Products in which the tamper proof sticker has been removed or broken.

During the warranty period, Scientech will repair, or at its option replace at no charge, components that prove to be defective. The product must be returned, shipping prepaid, to Scientech's authorized repair facility. Products repaired by Scientech's authorized repair personnel/facilities will be warranted against defects in the repaired component and workmanship for a period of 365 days from the date of shipment of the repaired Product.

7   Returned Goods Procedure:

Should it become necessary to return any product to Scientech for any reason including calibration, please contact Scientech to obtain an RMA (returned material authorization). RMA may be completed and submitted from Scientech's website using the following link: RMA (scientech-inc.com).

You may also contact our Product Support at (800) 525-0522 or (303) 444-1361 or email inst@scientech-inc.com. Be prepared to provide model number, serial number, and a description of the problem along with contact information. Frequently we can provide self-help information which will eliminate the need for returning the product.

If product return is required, please pack the items in the original box and packing material. As an alternate, place the equipment in a snug-fitting box, and then pack that box in a larger box with at least four inches of packing material. Scientech does not assume responsibility for products damaged during shipping and shipping damage will not be treated as a warranty repair. Please include a point of contact, email address, and phone number of the person we should

contact regarding repair questions.

Normally, products are repaired and shipped within ten (10) business days following receipt of the product at the authorized service facility. The repair turn-around time could vary depending on the workload.

Shipping Address: Scientech, Inc.
                         Product Support
                         5649 Arapahoe Ave.
                         Boulder, Colorado 80303 U.S.A.

8   Disposal of Electronic Equipment

Scientech recommends the following for disposal of electrical and electronic equipment:

1. The best option is to reuse the equipment in its entirety.

2. Where the equipment cannot be reused in its entirety, priority should be given to reuse of its subassemblies and components.

3. Where reuse is not appropriate, electrical and electronic equipment, including batteries, should be recycled according to local ordinances.

4. Waste electrical and electronic equipment should never be mixed with municipal waste.