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Libra Cart Instructions 2020

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Introduction

Thank you for purchasing the Libra Cart App. During the rush of harvest, every minute and every bushel counts. That's where the Libra Cart app from Central City Scale can make a real difference. With a typical accuracy of 1 %, our grain cart scales allow in- the-field weighing of crops for maximum grain truck loads, check on crop yields, and an easy way to keep records.

App & Hardware Installation

The Libra Cart app can be downloaded for free from the Google Play and App stores. The best place to mount the bluetooth box is behind one of the front two baffles of the grain cart.



Install behind this area with the connector panel facing down. This prevents water damage.



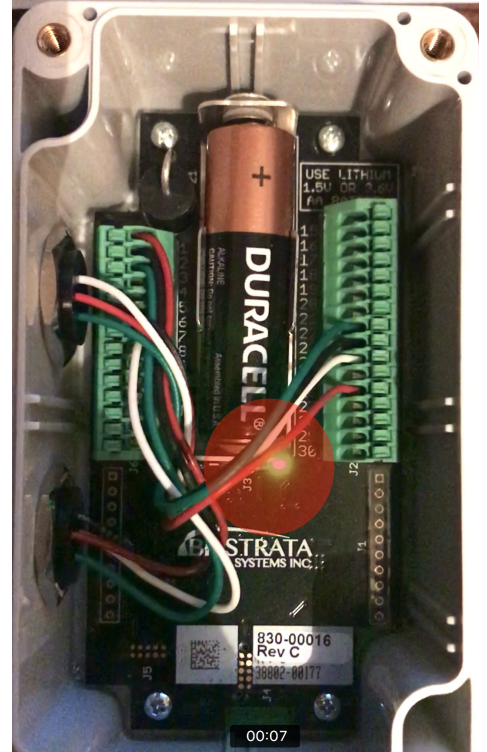
Another option is to mount the bluetooth box on the inside support panel. Any spot that is out of the elements will work for installation.



Battery Installation

Ensure there is a fresh 3.6 AA lithium battery (Tadiran 5903) installed in the Libra Cart device before each harvest season. See your dealer or visit our website for replacement batteries. New model will support regular 1.5 AA batteries. Be mindful that these will not last as long as the 3.6 AA lithium batteries.

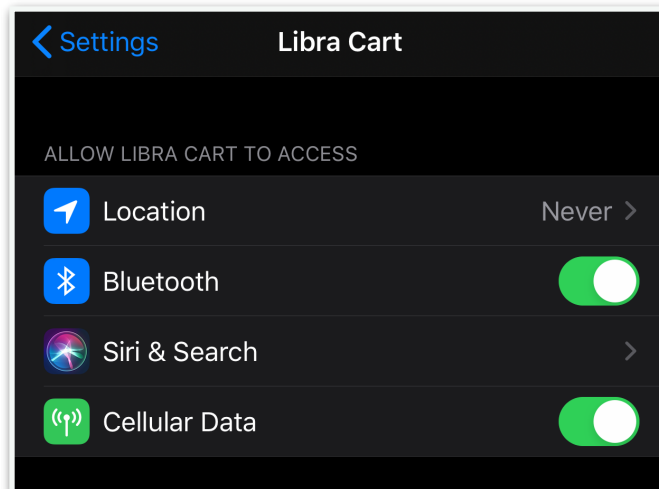
Your (2018 and newer) Libra Cart device will operate with a standard AA battery.



1. Remove the lid of the Libra Cart device.
2. For first-time operation, remove the insulator pull-tab.
3. Ensure that the battery is well seated.
4. Secure the lid, tightening the screws to eliminate the gap at each end.
5. Notice the flashing light that appears every 10-12 seconds. It alerts the operator that the device is ready to pair and is functioning. This light is located above the “Bistrata” Logo and directly below the battery cradle.

Pairing

Once installed, your Libra Cart and mobile devices must be paired to communicate properly. Download the app from the App Store or from Google Play by searching for “Agrimatics Libra”. Ensure that you download the “Libra Cart App.”



Also, ensure that Bluetooth has been enabled for the app in the main settings of the device. Bare-in-mind that the Bluetooth availability for a specific app can be disabled after a major software update.

Pairing is done directly through the app Settings tab and NOT through your general 444 smartphone/tablet settings

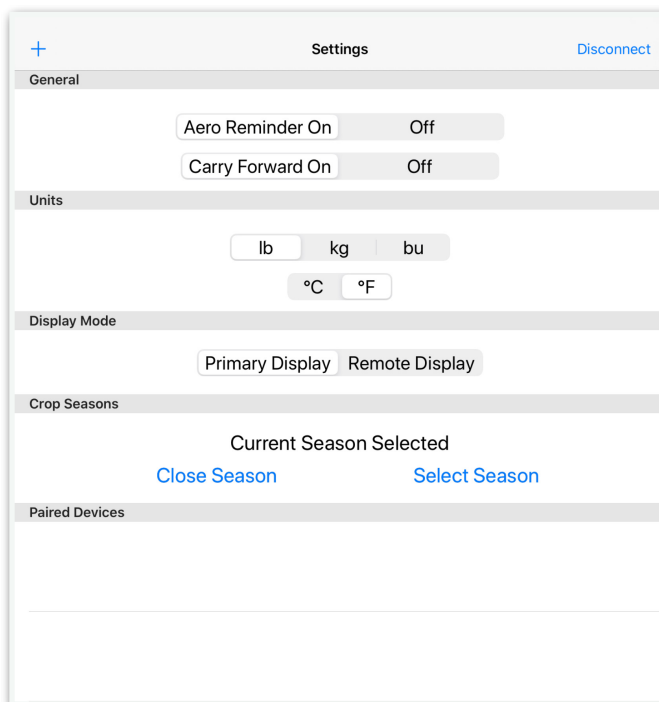
1.Ensure Bluetooth is enabled on your mobile device.

2.Temporarily bring your mobile device next to the Libra Cart device and launch the Libra App.

3.Select the Settings tab inside the app. For the tractor’s mobile, ensure Remote Mode is set to OFF. For a remote display, turn Remote Mode ON.

4.Tap + to add your new Libra Cart Device to the app, and wait for the scan to finish.

5.Once successfully paired, type a name to identify your cart.



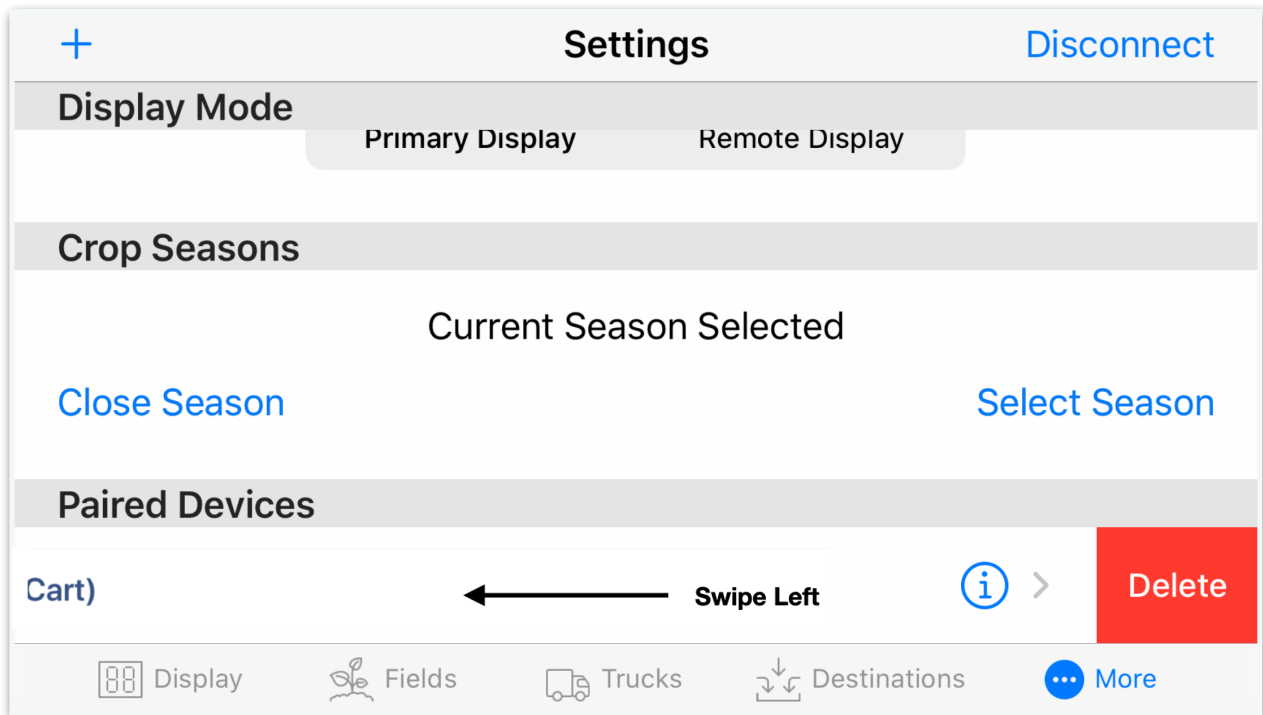
Troubleshooting Connections

If you have problems connecting to the Libra Cart device, please ensure each of the following (in sequence):

1. The 3.6V lithium battery is properly inserted in your Libra Cart device.
2. Bluetooth is enabled in your smartphone/tablet settings.
3. The Bluetooth icon is visible in the status bar across the top of your. If not, reboot the mobile device. (no longer visible on newer version)
4. Your Libra Cart device is selected from the list of Paired Devices in the Settings tab (tap to select).
5. The Bluetooth icon is black to indicate that the pair are actively communicating. If not, delete the paired device and re-pair.
6. Remote Mode is set to OFF in the Libra app settings for the main mobile device: ON for mobile devices acting as remote displays.
7. There are no other mobile devices actively controlling the Libra Cart device.

If problems persist, try removing the Libra Cart device's battery, waiting 30 seconds, and then reinserting the battery. (Ensure you see a flashing light above the "Bistrata" logo. The flash appears every 10-12 seconds).

The simplest way to reestablish a Bluetooth connection is to go into the Settings tab in the Libra Cart App, swipe left on the row of the named device, which brings up a delete button. Tap delete and then press the + button in the upper left hand corner to repair the connection.



Configuration

(Recommended Settings)

Cart Name

1

✕

Display Rounding

20

-

+

Unload Detection

☒

Min Load (lb)

1000

Smoothing

☒

Cancel

Moisture


Gate

Calibration Example One

Note !!!(36000 is not the Capacity of the cart, it is just a ratio).

**If upgrading from an existing scale indicator or purchasing from Central City Scale, use 0.4 mV/V as the Sensitivity, and the Indicator's calibration number as the Rated Capacity.*

Central City Scale will calibrate all Libra Cart boxes ahead of time. There will be a sticker on the unit with the correct calibration number using the 0.4 method and a cal number in the place of the rated capacity. Central City Scale has calibrated most of the hundreds of grain carts models out there so they have acquired these numbers for you. If you need to calibrate for any reason follow these steps:



Calibration Menu

Sensitivity (mV/V)

Rated Capacity (lb)

Certified Reading

Cart Reading

[Copy From Truck](#) [Calculate](#)

Calibration Factor

[Zero Scale](#) [Save Settings](#)

Firmware Version 3.0.1

Battery Voltage 3.45 V

[Restore Device](#) [Update Firmware](#)

[Send Diagnostics](#)

to

↶ ↷ 📄

"36900"

1 2 3 4 5 6 7 8 9 0

⌂ @ # \$ % & * () ' " Next

#+= % - + = / < > ! ? #+=

ABC 🔊 undo ABC 📱

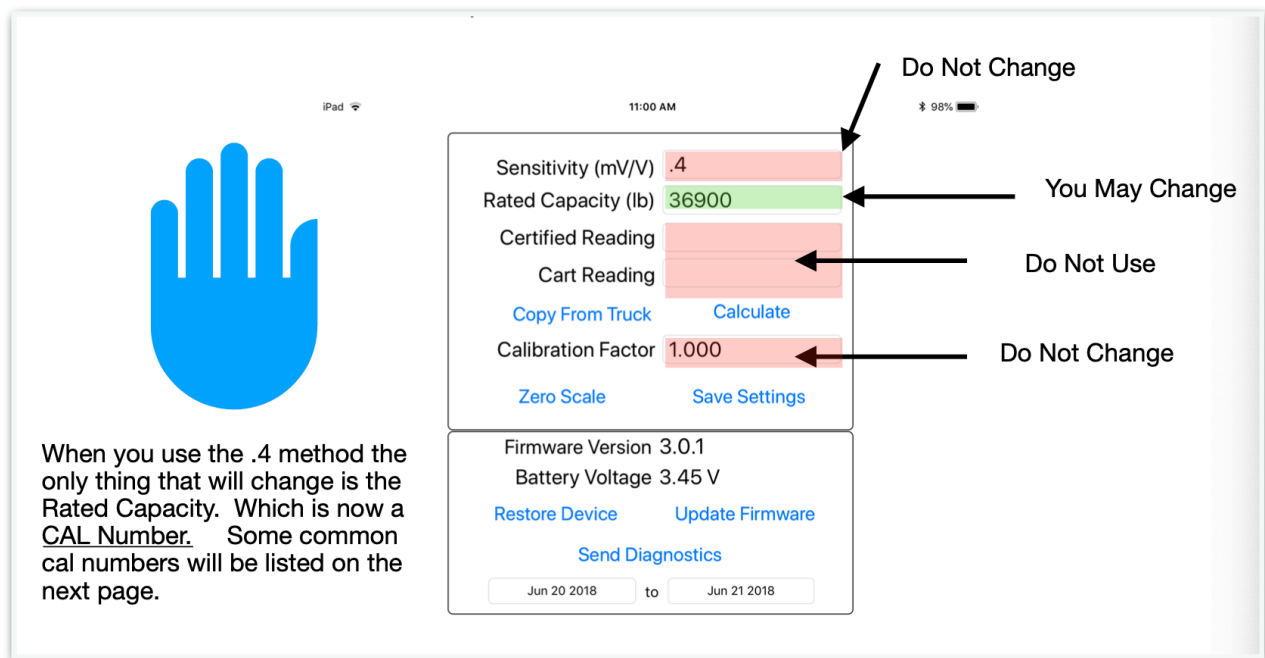
Continued.....

Once configured, the Libra Cart device **MUST** be calibrated to ensure measurement accuracy.

1. Ensure the Libra Cart app and device are connected.
2. Ensure the grain cart is empty and on level ground.

3. *How to Zero Scale: Select the Device tab and press Zero Scale.*

4. Select the Display tab and fill the grain cart.
5. Press the Tare button then unload the cart into an empty truck, noting the amount unloaded as shown on the large display.
6. Weigh the truck payload at a certified scale.
7. Take the actual weight and divide it by the grain cart weight reading.
8. All calibration codes can be found in CCSCALE app available for both Apple and Android.
9. Central City Scale also offers video demonstration on calibration and any of the operations of the Libra Cart app. Just go to YouTube and search Central City Scale or head over to www.librahelp.com.



Example Calibration

Actual Weight ÷ Incorrect Weigh x Current Cal Number (Rated Capacity). = CAL

Example. Actual = 59,000, Incorrect = 60,000

Current Cal Number (Rated Cap.) = 36000

$59,000 \div 60,000 = .98$ (Rounded) $36000 \times .98 = 35280$ for the new cal number.

The Cal Number can be adjusted as many times as desired until maximum accuracy of 1% is reached.

Your Cal number will be adjusted each time you calibrate. Make sure you only multiply by the current cal number. 36000 in the example is only the starting point and not a constant multiplier. Finish calibrating once you have achieved a reasonable accuracy for your cart. 1% for small carts and sometimes 2% for older and larger models.

Calibration Codes For Libra Cart Using the .4 Method

3 Bar Weigh-Tronix Libra Cart Resistor	0.4	36900
3 Bar Weigh-Tronix Libra Cart	0.4	27680
5 Bar Weigh-Tronix Libra Cart	0.4	46130
6 Bar Weigh-Tronix Libra Cart	0.4	55360
8 Bar Weigh-Tronix Libra Cart	0.4	73800
CC 50 Weigh-Tronix Libra Car	0.4	24000
CC 50/WT LibraCart Pivot Style Kinze	0.4	48000
3 Bar Digi-Star Libra Cart	0.4	24000
CC & 3 Bar Digi-Star Libra Cart (Unv, Brent, Kinze)	0.4	48000
5 Bar Digi-Star Libra Cart	0.4	40000

Calibration Example 2

You can try to hunt down the sensitivity mV/V of each bar, use the sensitivity, and multiply the rated capacity of each bar times the total bar count. This does not work most of the time so, this is why we use the 0.4 method.

Sensitivity (mV/V) 0.4

Rated Capacity (lb) 36000

Certified Reading

Cart Reading

Copy From Truck Undo

Calibration Factor 1.000

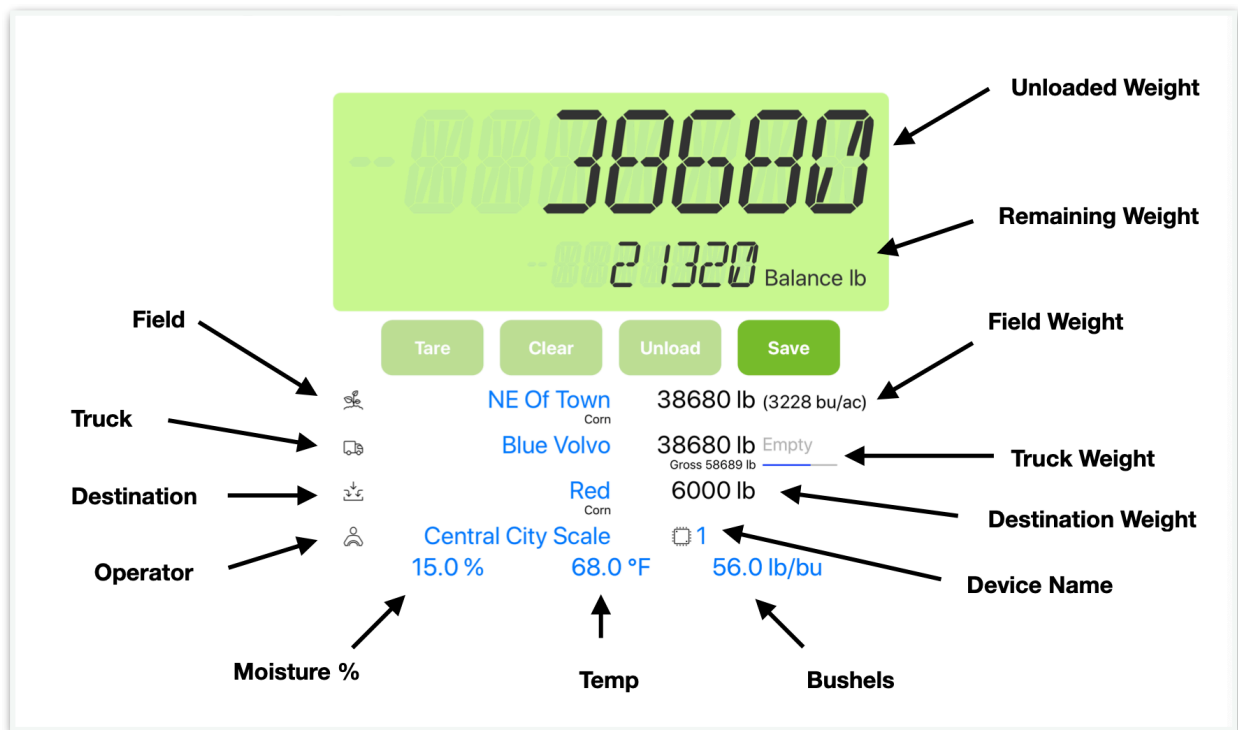
Zero Scale Save Settings

Correct Weight

Incorrect Weight

See the Change and Always remember to press "Calculate" and then "Save"

Display Tab



Automatic Unload Detection

Manually Starting an Unload

Fill to Max GVW

Fill to Net Amount

Add Amount

Empty Cart

Changing Field, Truck, Destination, Operator Changing Moisture,

Temperature and Test Weight

Automatic Unload Detection & Main Keys

Tare sets a reference weight from which the subsequent readings are based (net weight).

Clear, clears the tare reference weight.

Unload and Save manually forces the start or end of an unload event, whether or not unload detection is enabled.



Configuring

Underneath the upper display is an area that indicates whether the system is configured to automatically detect unloading, with the text “Auto” or “ Manual.” If the device is in remote display mode, this area displays “Remote”.

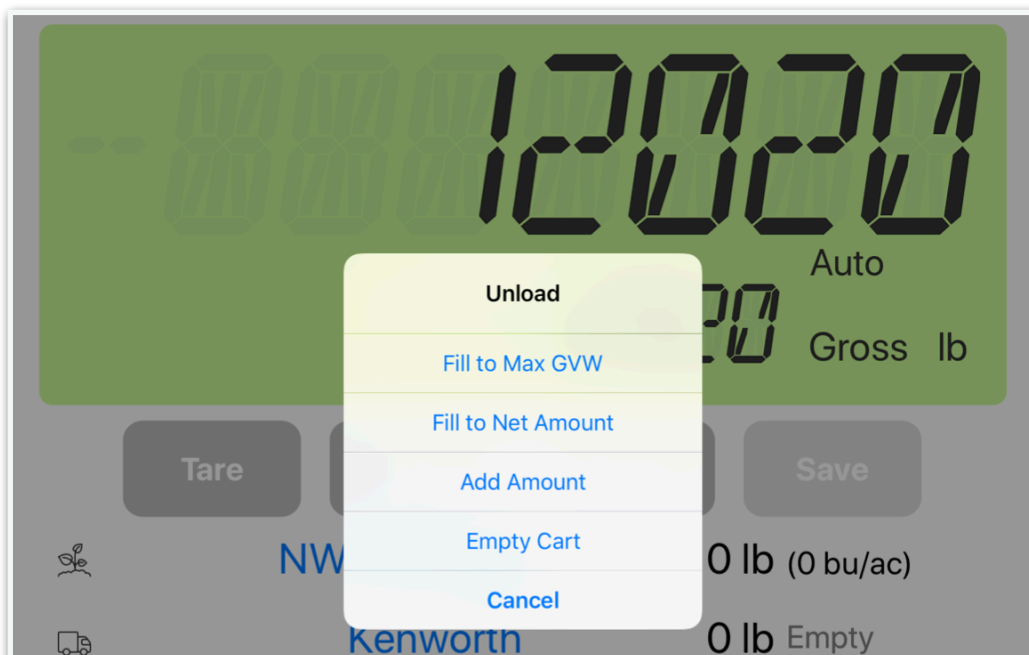
When using automatic unload detection, the system automatically detects unloading (during the “Auto” text is replaced with flashing “Unloading” text) and will automatically save the following information in the Libra app: date, time, wet/dry weights, and GPS coordinates (if mobile device supports GPS).

Each load is also associated with the selected field, truck, destination, operator, commodity, test weight, temperature, and moisture. The system will automatically detect loads larger than approximately 1000 LBS. (Minimum Load) configured in the Settings tab: this lower limit can be affected by operator behavior.

Although detection may take a number of seconds to accurately differentiate between legitimate cart unloads and travel through rough fields, all grain cart weight is accounted for.

Operation

1. Unload the contents of the grain cart into the truck. You will see the weight reading of the upper display decrease, and once unloading has been detected, the weight reading of the lower display will increase indicating the current amount unloaded.
2. When unloading stops, the load information will automatically save within about 10 seconds. Note that the Save button may optionally be used at anytime to finish and save any transaction, whether automatically detected or started manually.
3. Manually Starting an Unload To manually force the start of an unload event, whether or not Unload Detection is enabled, press Unload on the Display tab to view and select from a list of options (Fill to Max GVW, Fill to Net Amount, Add Amount, Empty Cart), enter a target amount if prompted, unload and press Save.



Fill to Max GVW

Fill to Max Gross Vehicle Weight fills the selected truck from a grain cart until its configured maximum gross vehicle weight is met.

The upper display shows the net amount loaded into the truck so far. The lower display shows the balance of weight yet to be unloaded.

1. Press Unload from the Display tab.
2. Select Fill to Max GVW.
3. Unload any amount into the truck.
4. Press Save load is finished (optional if Unload Detection is enabled).

Fill to Net Amount

Fill to Net Amount fills the selected truck to a target net amount (weight of grain) that you enter. The target must be higher than the current net amount in the truck you are loading.

The upper display shows the net amount loaded into the truck so far. The lower display shows the balance of weight yet to be unloaded.

1. Press Unload from the Display tab.
2. Select Fill to Net Amount.
3. Enter payload target weight.

4. Unload any amount into the truck.
5. Press Save when load is finished (optional if Unload Detection is enabled).
Add
Amount

Add Amount allows you to add a specific weight to the truck.






1. Press Unload from the Display tab.
2. Select Add Amount.
3. Enter the amount to add.
4. Unload any amount into the truck.
5. Press Save when loads is finished (optional if Unload Detection is enabled).

Empty Cart

1. Press Unload from the Display tab.
2. Select Empty Cart
3. Unload any amount into the truck.
4. Press Save when load is finished (optional if Unload Detection is enabled).

Changing Field, Truck, Destination, Operator or Grain Cart

The Display tab lists the running total weights for the selected field, truck, and destination. To change the selected field, truck, destination, or operator, simply touch the associated blue text to scroll and select from the lists created previously.

	NW of Bridge Corn	0 lb (0 bu/ac)
	Kenworth	0 lb Empty Gross 20000 lb
	J1 Corn	308340 lb
	Central City Scale	 1

Empty Truck/No Truck

1. Press Unload from the Display tab.
2. Select Empty Cart
3. Unload any amount into the truck.
4. Press Save when load is finished (optional if Unload Detection is enabled).

John's Trucks	Volvo
Matts Trucks	Freight liner
New Truck Group	Kenworth
purple	Volvo
	Blue Volvo

Changing Moisture, Temperature and Test Weight

The Display tab lists the running total weights for the selected field, truck, and destination. To change the selected field, truck, destination, or operator, simply touch the associated blue text to scroll and select from the lists created previously.

15.0 %

68.0 °F

56.0 lb/bu

Fields Tab



Adding a Grower

Adding Email to Mobile Device

Troubleshooting Email

Adding a Farm (for a Grower)

Adding a Field

Viewing Field Details

Changing Commodity Type

Viewing Transaction Details

Adding a Grower

1. Press + to add a grower.
2. Type in the Grower Name and press Done.

The grower can be edited by tapping

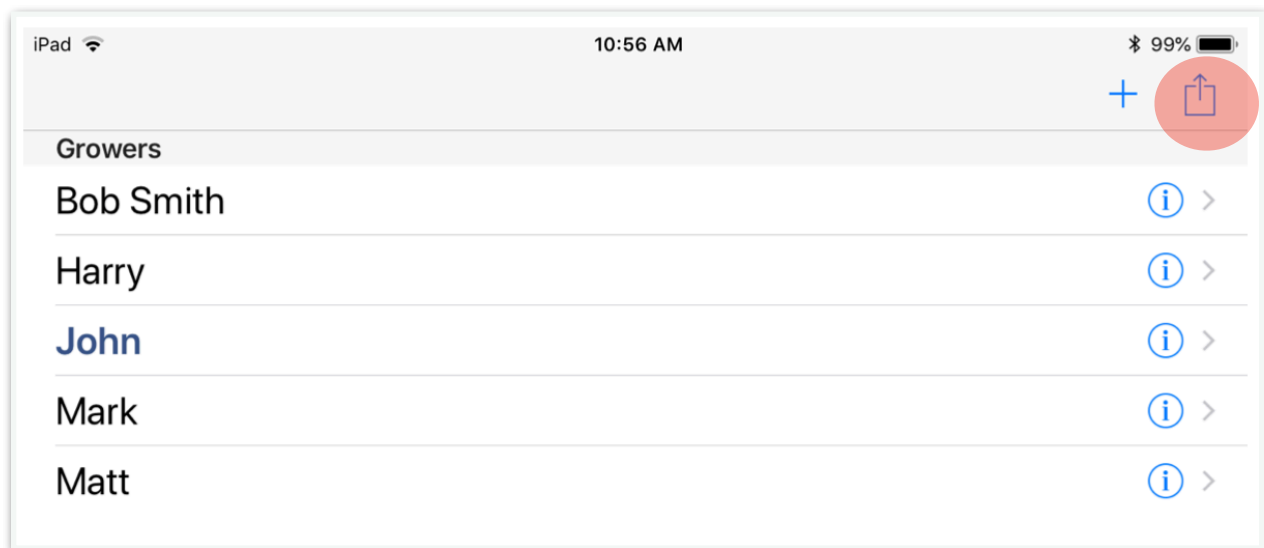


Sending Out Your Data !!!

The **transmit button** at the grower level constructs an email with a .CSV file attachment that contains recorded data for ALL growers, farms and fields. This file can be opened up with Excel or other spreadsheet software packages. **Ensure your gmail account is set up on your device.**



Transmit button



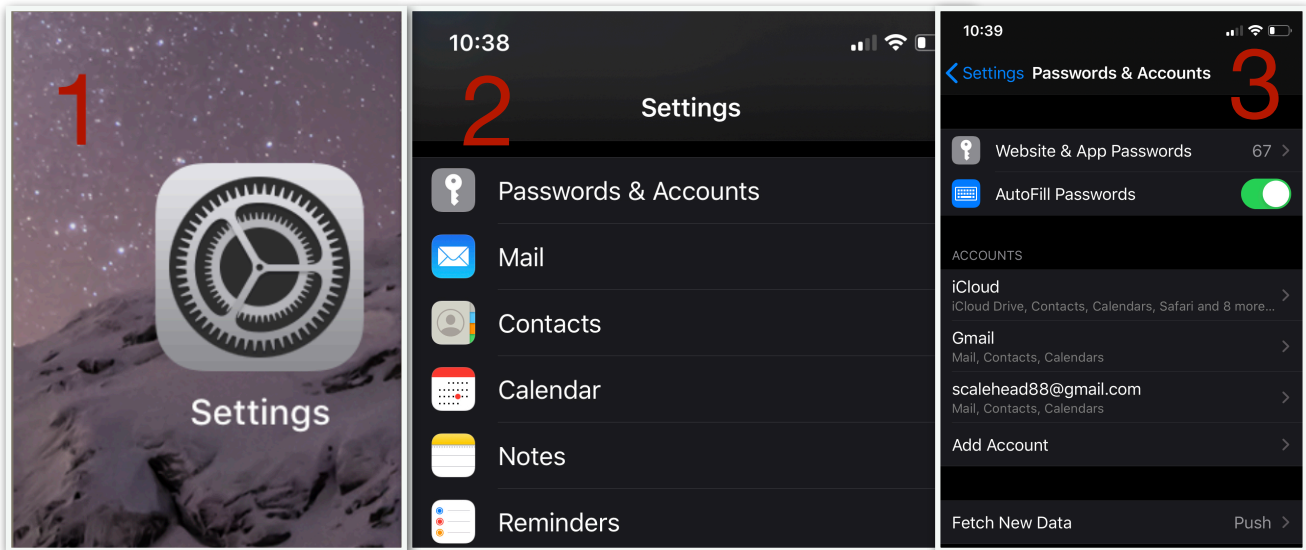
Adding Email to Mobile Device

Ensure to know how to add email to your iPad.

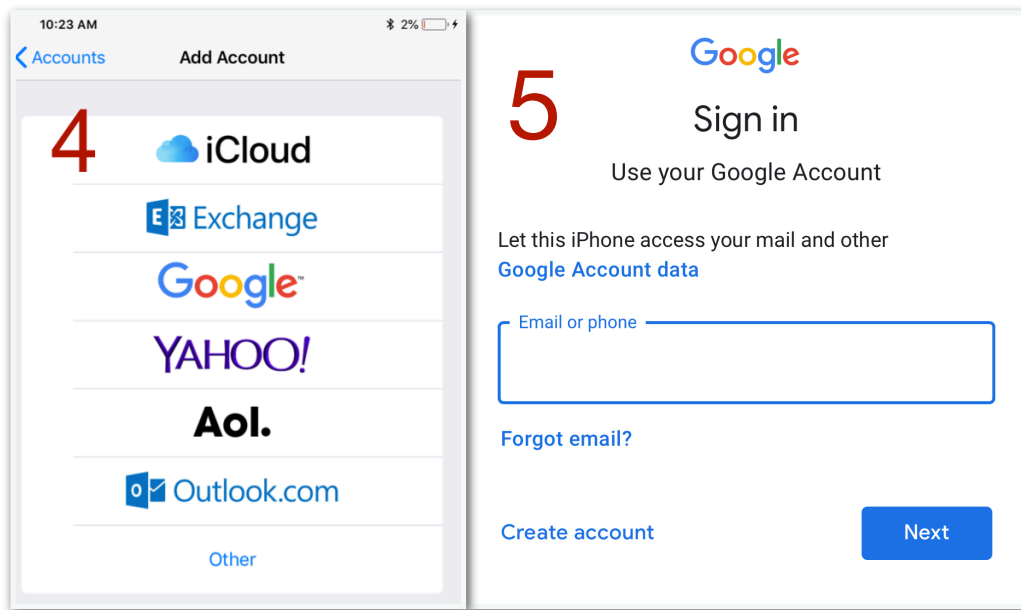
It is recommend to use a larger email carrier like yahoo, google, live etc. Local and rural email carries are not as seamless when it comes to transferring data.

Adding an additional email account to your iPad

1. Tap Settings.
2. Then tap Accounts & Passwords
3. Next, tap Add Account.



4. Select from the list of provided emails for your email address company. Press other for small companies. **Continued...**
5. Fill out the address and password the press next.



Troubleshooting Email

If you have trouble emailing out the data try this...

1. Tap Settings
2. Then tap Accounts & Passwords the tap on the email account you would like to delete and press Delete Account.
3. Repeat the top settings to add the address again.

Adding a Farm (for a Grower)

1. Tap the name of the grower or > to advance to the farms assigned to that grower.
2. Press + to add a farm.
3. Type in the Farm Name and press Done.
The Farm Can be edited by tapping



Adding a Field

1. Tap the name of the farm or > to advance to the fields assigned to that farm.
2. Press+to add a field
3. Type in the Field Name, Area, select a commodity and press Done.

The Fields tab is used to manage the data for each field. Fields are organized by grower, farm, and field. Each grower can have an unlimited number of farms, each with an unlimited number of fields.

Viewing Field Details

To view the details for a field and all of its associated transactions, press the **Info Button** at the Fields level. The **Transmit Button** at the field details level constructs an email with the details for all transaction for that field.

Info Button



Transmit Button



iPad		10:57 AM	99%
Bob Smith		Smith Farm	
Fields			
JJ - Wheat	10000 lb (4 bu/ac)		
NE 40 - Soybean	0 lb (0 bu/ac)		

Email out Data

1. Tap on the Fields tab
2. In the upper right hand corner of the growers screen tap on the Transmit Button
3. In the “To:” type in the desired email address of where you want the data to be sent.
4. Notice there is a preview summary for the field totals. The email will include files on the transactions, truck transactions and calibration.
5. If there is not a return address, this means you have to add an email to your device. How will you retrieve the data without an email address? Please see ***“Adding Email to Mobile Device”***

See also Sending Out Your Data !!!

Viewing Field Details

To view the details for a field and all of its associated transactions, press **Info Button** at the Fields level. The **transmit button** at the field details level constructs an email with the details for all transaction for that field.



Info Button

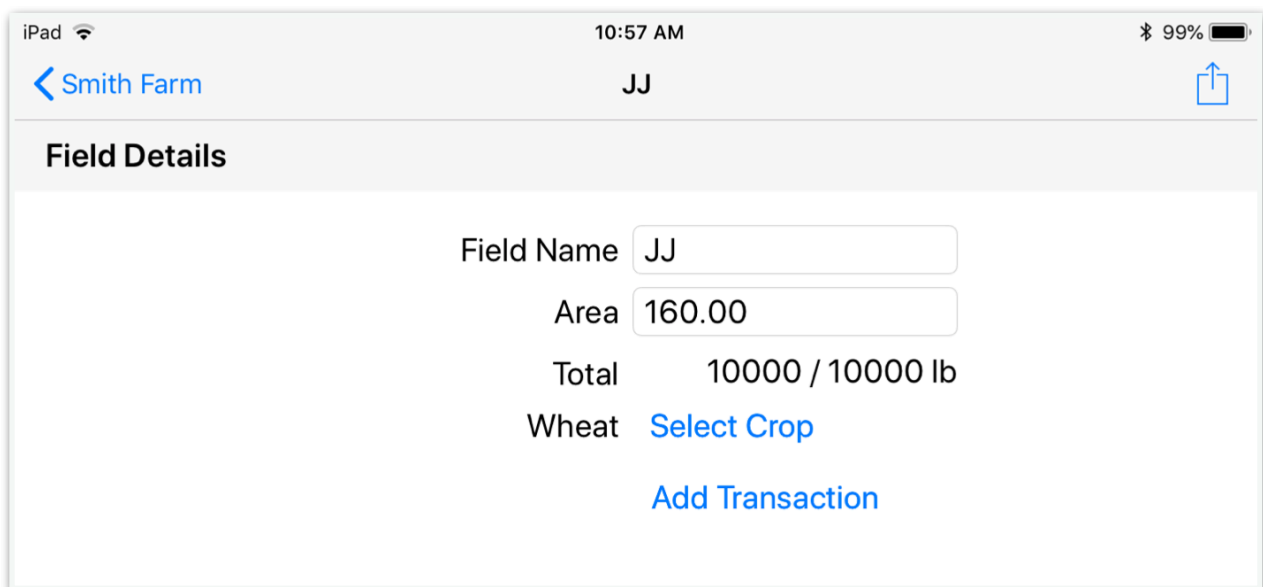


Transmit Button

Changing Commodity Type

To change the commodity type, select the Field tab in the application bar. Go into the individual field's details by pressing the **Info Button** at the field level and tap Select Crop to choose from a set of standard commodities, or create new commodities by tapping +.

 > **Info Button**



iPad 10:57 AM 99%

< Smith Farm JJ

Field Details

Field Name JJ

Area 160.00

Total 10000 / 10000 lb

Wheat [Select Crop](#)

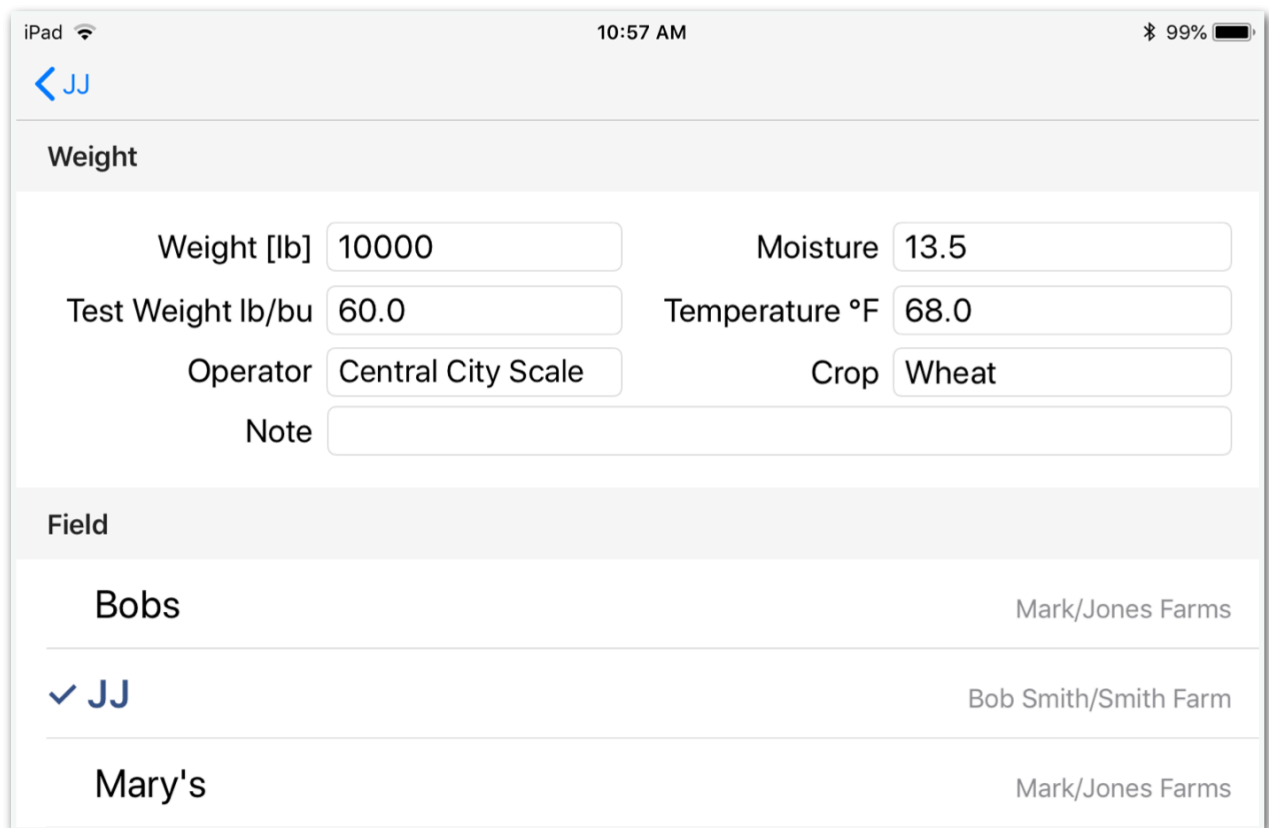
[Add Transaction](#)

Viewing Transaction Details

In the Field Details level, tap the **Info Button** beside the transaction you want to view or edit. The transaction details show weight information and the field, trucks, and destination which it is associated.

To edit the weight details or to add notes, click the box(es) to edit and press Done. To change the field, truck or destination associated with a load, tap the desired selection. A check mark will appear beside the current selection.

 > **Info Button**



The screenshot shows an iPad interface with a status bar at the top displaying 'iPad', signal strength, time '10:57 AM', and battery level '99%'. Below the status bar is a navigation bar with a back arrow and 'JJ'. The main content area is divided into sections. The 'Weight' section contains input fields for 'Weight [lb]' (10000), 'Moisture' (13.5), 'Test Weight lb/bu' (60.0), 'Temperature °F' (68.0), 'Operator' (Central City Scale), 'Crop' (Wheat), and a 'Note' field. The 'Field' section is a list with three items: 'Bobs' (selected with a checkmark), 'JJ', and 'Mary's'. Each field item has a corresponding destination name on the right: 'Mark/Jones Farms' for 'Bobs' and 'Mary's', and 'Bob Smith/Smith Farm' for 'JJ'.

Weight	
Weight [lb]	10000
Moisture	13.5
Test Weight lb/bu	60.0
Temperature °F	68.0
Operator	Central City Scale
Crop	Wheat
Note	

Field	
Bobs	Mark/Jones Farms
✓ JJ	Bob Smith/Smith Farm
Mary's	Mark/Jones Farms

Trucks




Adding a Truck Group

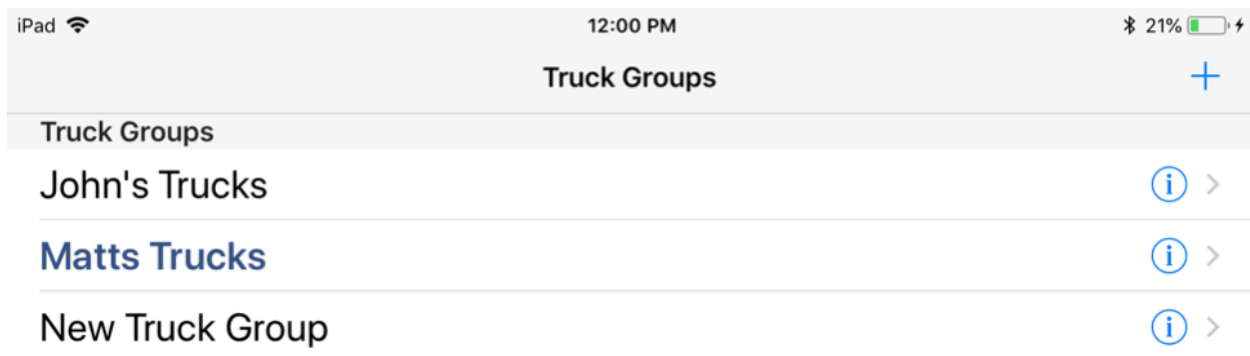
Adding a Truck to a Group

Viewing Truck Details

Adding a Truck Group

1. Press + to add a truck group.
2. Type in the Name of the truck group and press Done.

The truck group name can be edit by tapping  >



Adding a Truck

1. Tap on the row of the truck group.
2. Press the + and type the name of the truck and add a tare and max weight.

The screenshot shows the 'Matts Trucks' app interface. At the top, there's a header with 'Truck Groups' and 'Matts Trucks'. Below this is a list of trucks: 'No Truck', 'Freight liner', and '✓ Kenworth'. The 'Kenworth' truck is selected, and its details are shown below. The details include 'Name: Kenworth', 'Tare Weight [lb]: 20000', and 'Max GVW [lb]: 89000'.

Trucks	
No Truck	i >
Freight liner	0 lb i >
✓ Kenworth	0 lb i >

Truck Details	
Name	Kenworth
Tare Weight [lb]	20000
Max GVW [lb]	89000

Viewing Truck Details

The Truck Details include tare weight, max gross vehicle weight, current load, as well as all historical loads. To view the details and all of the transactions for a truck, tap the info button.

Info Button



The screenshot shows the 'Blue Volvo' truck details screen. It includes fields for 'Name: Blue Volvo', 'Tare Weight [lb]: 20000', 'Max GVW [lb]: 80000', and 'Current Load: 65516 lb'. Below this is a section titled 'Current' showing a transaction: 'Jun 21, 2018 10:56 AM - NE Of Town' with a load of '65516 lb' and an info button.

Truck Details	
Name	Blue Volvo
Tare Weight [lb]	20000
Max GVW [lb]	80000
Current Load	65516 lb

Current	
Jun 21, 2018 10:56 AM - NE Of Town	65516 lb i >


Destinations Tab

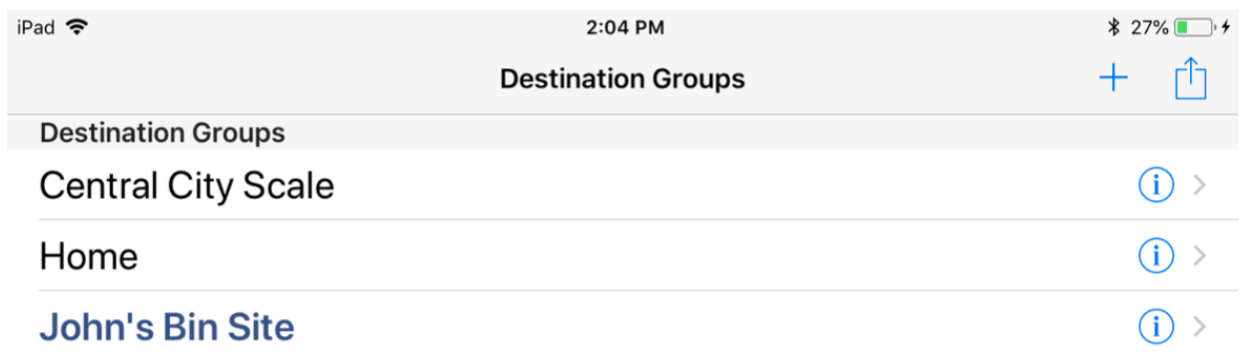


Adding a Destination Group

Adding a Destination

Adding a Destination Group

1. Press + to add a destination group.
2. Type in the name of the Designation Group and press Done.
3. The destination group name can be edited by tapping  >



Adding a Destination

1. Press the name of the destination group or > to advance to the destinations assigned to that group.
2. Press + to add a destination.
3. Type in the Destination Name and press Done.

iPad 2:11 PM 27%	
< Destination Groups	John's Bin Site +
Destinations	
✓ J1 - Corn	308337 lb ⓘ >
J2 - Corn	77995 lb ⓘ >

Viewing Destination Details

The Destination Details lists the total weight (dry/wet), and all of its unload transactions.


To view the details and all of the transactions for a destination, press ⓘ >

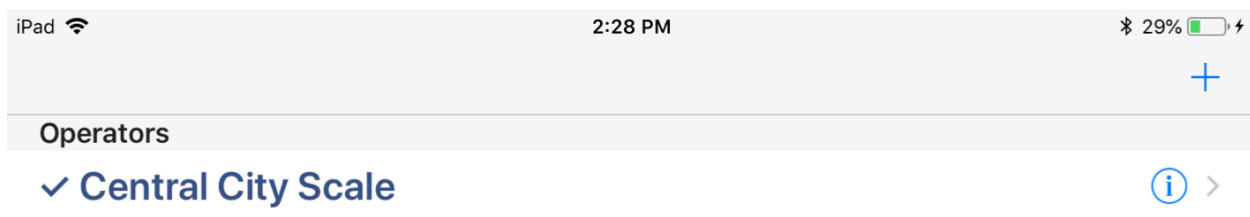
iPad 2:16 PM 28%	
< John's Bin Site	J1
Destination Details	
Name J1	
Total 300612 / 308337 lb	
Carryforward thru Seasons <input checked="" type="checkbox"/>	
Add Transfer	
Incoming	Dry / Wet
Aug 07, 2017 09:56 AM - New Field	93584 / 95839 lb ⓘ >
Aug 03, 2017 05:46 PM - New Field	35121 / 35968 lb ⓘ >
Aug 03, 2017 05:43 PM - New Field	11341 / 11614 lb ⓘ >

Operators Tab



The Operators tab is used to manage the list of equipment operators. To add an operator, press + and type in the Operator name. The current operator may be selected by tapping the desired name.

Tap  > to edit the name of the operator.



Device Tab



Firmware

Restoring the Device

Sending Diagnostics

Firmware

Just as the Libra app can be updated through the App Store, the software that runs on the Libra Cart device (firmware) can be updated. To check the availability of new firmware for the device, press Update Firmware. If a new version is available, the app will guide you through the update process.

Restoring the Device

In the unlikely event that you need to restore the firmware to factory defaults, tap Restore Device.

Model: N/A

Serial Number: N/A

Firmware Version: N/A

Battery Voltage: N/A

[Restore Device](#) [Update Firmware](#)

Jul 26 2020

 to

Jul 27 2020

[Send Diagnostics](#)

Sending Diagnostics

Pressing Send Diagnostics will send us an email with all weight measurements collected by your Libra Cart app. This data will help us tune future versions of the app to ensure you experience the best performance possible. When sending diagnostics, please add some descriptive notes to the email to ensure that we understand the problem and your specific need.

Model: N/A

Serial Number: N/A

Firmware Version: N/A

Battery Voltage: N/A

Restore Device

Update Firmware

Jul 26 2020

to

Jul 27 2020

Send Diagnostics

Settings Tab



Cart Name

Selecting a Libra Cart Device

Units

Remote Mode

Selecting or Closing a Season

Editing/Deleting a Device

Display Rounding

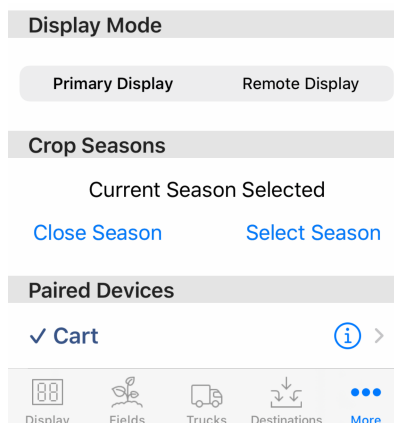
Minimum Load

Smoothing

The Settings tab lists the Libra devices to which the app is paired, allows configuration of user preferences for those devices, as well as configuration of general system settings.

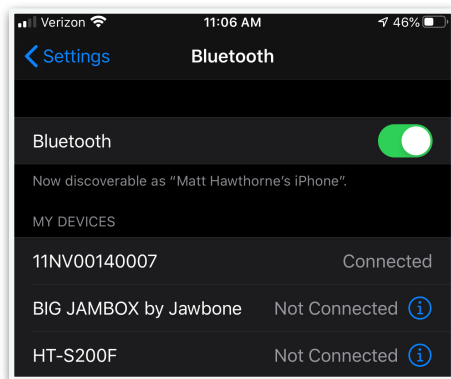
Cart Name

This text identifies the Libra device that is attached to your cart.



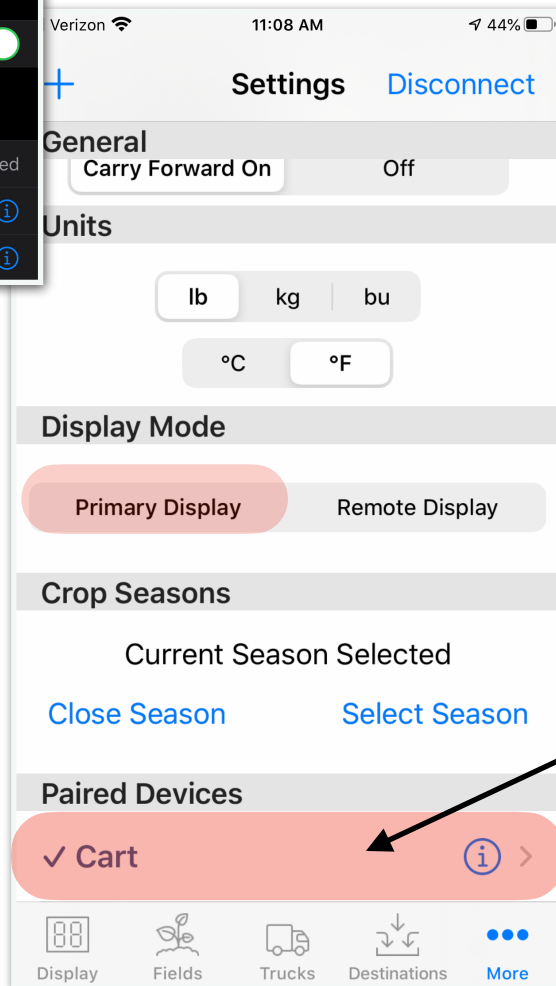
Selecting a Libra Cart Device

To select a Libra Cart device from the list of paired devices, tap anywhere within its row; a check mark indicates the selected device. To disconnect from all devices, press Disconnect in the top right hand corner of the settings tab. For the tractors's mobile device, if within about 50 feet of the Libra Cart device, the Bluetooth symbol in the status bar will no longer become solid to indicate connection success. Check the status of the bluetooth connection in the main settings after you have paired in the **App Settings** first. For remote displays within about 400 feet of the Libra Cart device, the Bluetooth symbol in the status bar will remain grey as no connection is needed.



Pairing is not administered here but the connection can be viewed after pairing in the Libra Cart app has been completed.

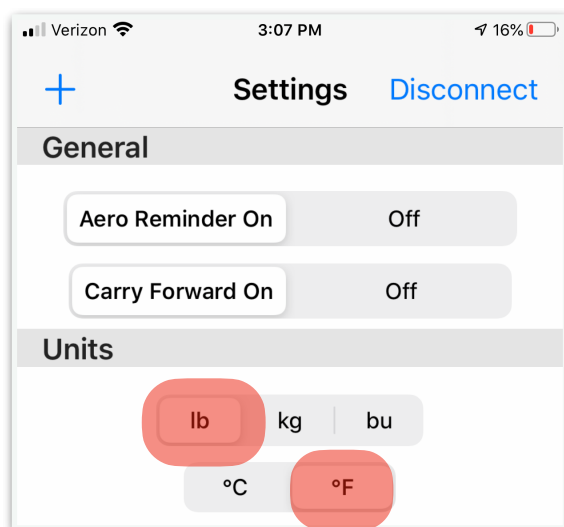
Ex. 11NV00140007



Tap within the Row

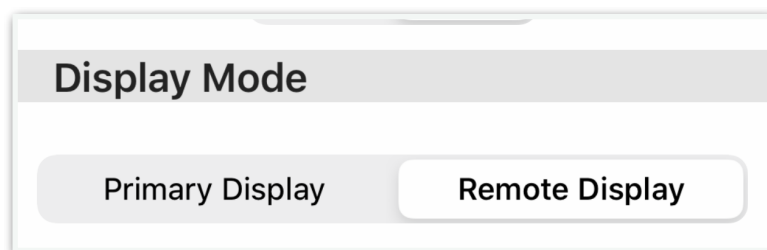
Units

The units and temperature buttons allow for changing the units of measure.



Remote Mode

Remote mode allows an unlimited number of remote users to monitor the live weights while within a range of approximately 400 feet from the Libra device. In this mode, operation is restricted so that no unload transactions can be processed or viewed. The main device must remain connected to the system with Remote Mode set to OFF. To turn a mobile device into a remote display, simply go into the app settings and enable Remote Mode.



Selecting or Closing a Season

Crop Seasons

Current Season Selected

Close SeasonSelect Season

iPad 10:59 AM 98%

< Central City Scale Central City Scale

Destination Details

Name Central City Scale

Total 0.0

Carryforward thru Seasons ☒

Add Transfer

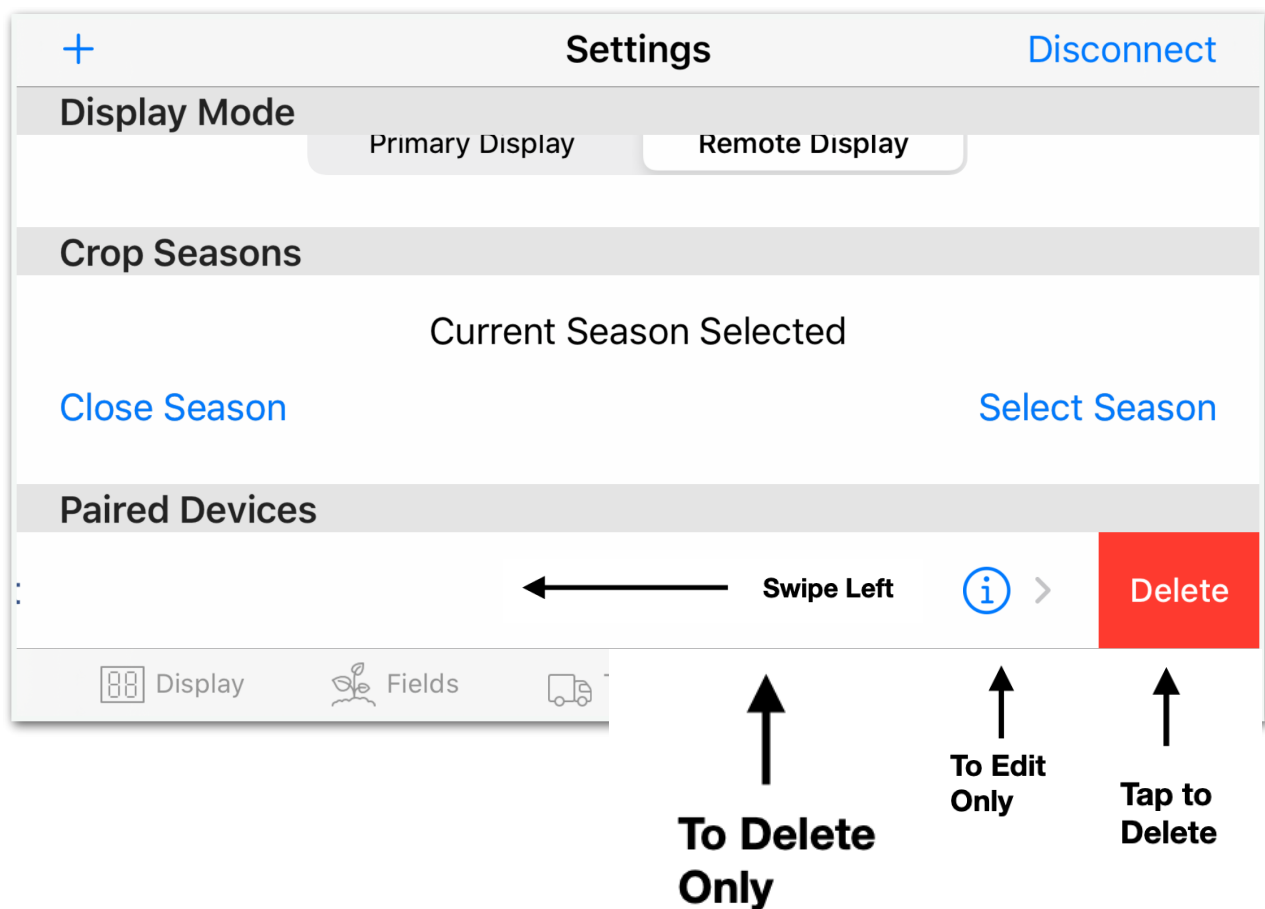
Turn Off to Reset the Bin/Destination to Zero

Carryforward thru Season is located in the destinations tab at the destination level by pressing the info button.

Info Button  >

Editing/Deleting a Device

To edit or change the settings for a device (display rounding, unload detection, minimum load and smoothing), press information button (i) or i within a circle to the right of the corresponding device. To delete a device, swipe left on the device row and tap delete.



Display Rounding

Sets how you would like the displayed weights to be rounded (10 LB, 20 LB, etc).

iPad 10:55 AM 99%

Cart Name 1

Display Rounding 20

Unload Detection ☒

Min Load (lb) 1000

Smoothing ☒

Cancel

Minimum Load

Cart Name 1

Display Rounding 20

Unload Detection ☒

Min Load (lb) 1000

Smoothing ☒

Minimum load should be let at the factory default of 1000 LB.

Smoothing

Enabling dynamic display smoothing keeps the weight display responsive while loading or unloading, but stable at other times.

iPad

10:55 AM

99%

Cart Name

1

Display Rounding

20

-

+

Unload Detection

☒

Min Load (lb)

1000

Smoothing

☒

Cancel

Scale System Troubleshooting

What does the scale do specifically wrong?

Does the scale weigh incorrectly?

Does the scale drift or fluctuate dramatically in weight?

ATTENTION!!! We provide troubleshooting videos on our website located under the service tab. Also, we have provided for you a weigh bar/load cell troubleshooting guide, that provides step by step guidance.

ou may also use our troubleshooting Android/Apple app available in both google play and the Apple app store. The app is called CCScale.

The Scale System Is Not Weighing Correctly

If you are seeing dramatic weight differences from load to load and calibration has not helped, it is time to weigh all around the equipment in question. (if possible). Having the equipment fully loaded provides the best detail. The next pictures will provide some guidance on how to weigh around on a grain cart. Not all equipment is the same and requires some maneuvering to achieve this task.

ATTENTION!!! You can calibrate all day long and not solve the problem if a bad weigh bar or mechanical problem is present. Follow these steps and it should get you back on the right track.

Most grain carts will be in the 3 - 5 weigh bar category.

Please see the following pictures.



1st Weight_____ location_____

2nd Weight _____ location_____

3rd Weight _____ location _____

4th Weight _____ location _____

5th Weight _____ location_____

6th Weight _____ location_____

7th Weight _____ location_____

8th Weight _____ location_____

9th Weight _____ location_____

10th Weight_____ location_____

Ex. 1st Weight 180 Hitch, 2nd Weight 180 Right Axle , 3rd Weight 180 Left Axle = **Good**

Ex. 1st Weight **120 Hitch**, 2nd Weight 180 Right Axle , 3rd Weight 180 Left Axle = **Problem**

Possible problems

Ensure the weigh bar / load cell is installed properly i.e. right side up of the recommended orientation. Most bars should be facing up and have a sticker marked **TOP**. If this is ever not the case the operator will be informed prior to installation.

The bar that weighs the lightest is usually where the problem is located.

There are hundreds of combinations of weigh bars / load cells and the more information we are provided the faster we can get you up and running.

Things to Know

Brand of Weigh bar/ Load Cell and Connector Description Connector ?



Amp



EZ Mate



5 Pin

Did the system come from Central City Scale?

When was the system purchased ?

Purchasing Business/ Farm Name ?

Make and Model of Equipment ?

Part Number of the Weigh Bar/ Load Cell ?

Further Testing

Ohms Test

The next step is to identify the brand of the weigh bars / load cells. If the brand is Avery-Weigh-Tronix it will most likely be a 5 pin system. If the brand is a Digi-Star the system it will mostly likely be a 4 pin system. The EZ Mate connector is usually a variation of Digi-Star.

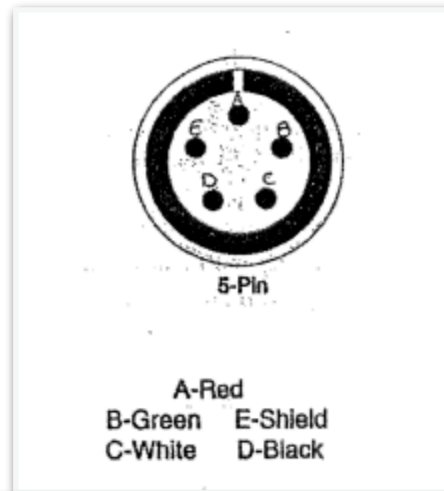
If there is a multimeter handy the resistance of the weigh bar can be checked. Look for the ohms Ω symbol on the multimeter. Ohms will be used to measure the resistance of the weigh bar that is in question.



Table I: Color Code for Digi-Star hard wired junction box

Terminals Digi-Star	Colors
+ Excitation	Red
- Excitation	Black
+ Signal	White
- Signal	Green
Ground	Bare/Orange

Table II: Color Code for Weigh-Tronix (Weigh-Tronix uses 5Pin (Plug) and Hardwired J- Boxes



Terminals Weigh-Tronix	Colors	Pins
+ Excitation	Green	B = 2 o'clock
- Excitation	Black	D = 7 o'clock
+ Signal	White	C = 5 o'clock
- Signal	Red	A = 12 o'clock
Ground	Bare/Orange	E = 10 o'clock

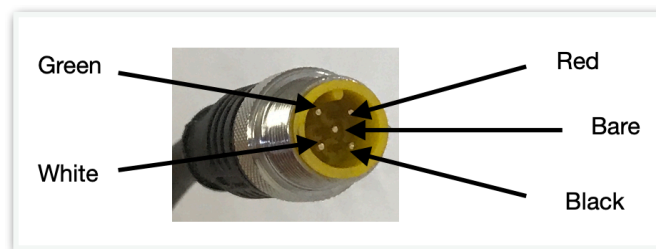
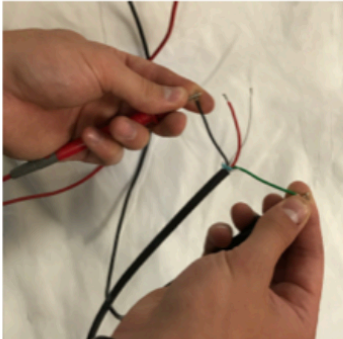


Table III: Color Code for EZ Mate

Terminals EZ Mate	Colors
+ Excitation	Red
- Excitation	Black
+ Signal	White
- Signal	Green
Ground	Bare/Orange

Table IV: Ohms for Digi-Star

	Color Combination	Ohms
	Red - Black	350+/- 5%
	Green - White	350+/- 5%
	Bare to All	Open

TableV: Weigh-Tronix Ohms

	Color/ Pins	Ohms
	Red - White or A-C	350 +/- 5%
	Green - Black or B-D	350 +/- 5%
	E - All	Open

Table V: EZ Mate Ohms

	Color Combination	Ohms
	Red - Black (Right Side)	350+/- 5%
	Green - White (Left Side)	350+/- 5%
	Bare to All	Open

Face the “Notch at 12 O’Clock for orientation

A Drifting Scale

When the display drifts all over the place and does not seem to settle on weights it is important

to find out which bar or load cell is causing the problem.

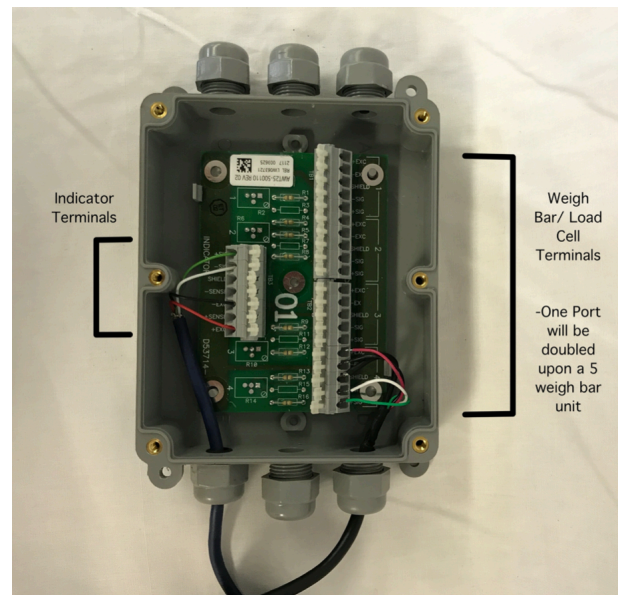
The Process of Elimination

1. Unplug all but one weigh bar/ load cell from the junction box.

5 Pin Junction Box with Connectors. Available with numerous ports. This example has 3.



Spring Loaded Junction Box with open wires that plug into the summing board. To do the process of elimination with this junction box, it is best if possible, to unbolt and lay flat. This method works best to allow for a better angle to disconnect the weigh bars / load cells.



2. With the first weigh bar / load cell connected, zero out the scale monitor. Next observe if the scale remains steady on zero. (A little shift in weight is acceptable). If the scale remains on a steady zero, this bar is okay and you may leave it connected into the junction box.

3. Move on to the next weigh bar/ load cell and see if it drifts after zeroing out the display. If the bar/ load cell drifts set it aside for further testing.
4. Move on the the next weigh bar / bar and repeat step 2 to see if there is a drifting weight. 5. If you do find a bar that drifts begin to administer the Ohms Test beginning on page 37.

Ensure the wires are free from the junction box when testing the spring loaded style.

Additional Testing

The key is to tap on the sensor can to cause vibration. If the scale drifts after being zeroed it could be because of a delaminated strain gage. This would result in the need of a new weigh bar.

- 1. Zero the scale and Tap on the Weigh Bar/ Load Cell with a rubber mallet as to not damage the internal electronics.**
- 2. If the scale drifts there is a problem with the Load Cell/ Weigh Bar**

