HOW TO GUIDE

FM 750

Trimble

BOURASSA & sons

Table of Contents

Getting to know Your Display.....1

Getting Started.....2

Making a Field.....2

Pattern Types.....2

Implement Setup.....3

Configurations.....4

Record Keeping.....4

Settings Menu.....5

Vehicle.....5

Vehicle Setup.....5

Auto Steer Calibration.....6

Roll Calibration.....7

Angle per Turn 7

Fine Tuning.....8

Implement (Field IQ).....9

Guidance.....9

GNSS/GPS.....9

Soft and Hard Reset 10

Data.....10

Deleting Fields.....10

System.....11

Saving Configurations.....11

Unlocks and Upgrades.....11

Field IQ.....11

Accuracy Upgrades.....12

Entering Codes.....12

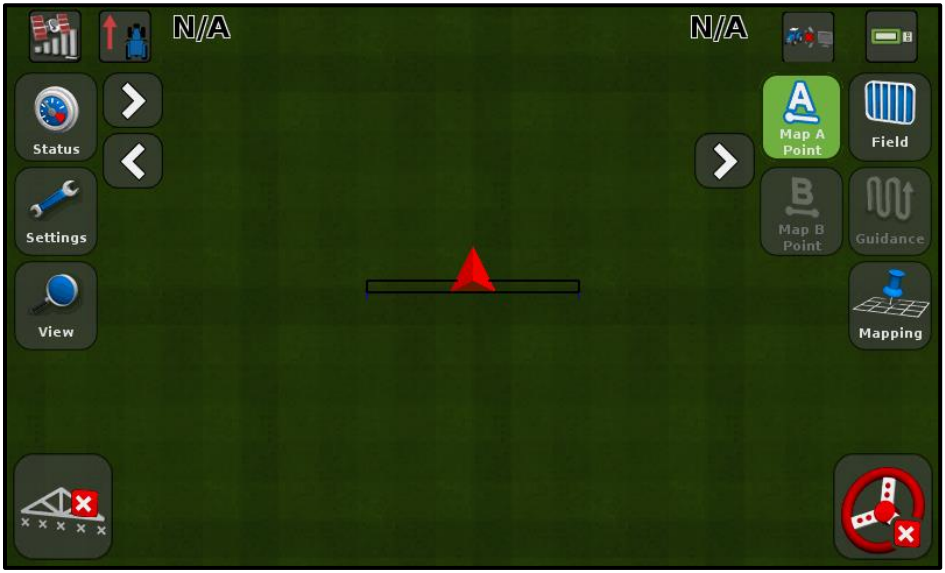
Your Recorded Calibrations.....13

Troubleshooting.....13

RTX Map.....14

Contact Info.....14

Getting to Know Your Display



This is your main screen while operating your display.

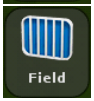
Shows your satellite signal. Red= no signal, Yellow= locking on, Green= locked.

Shows vehicle direction. Touch the icon if the incorrect direction is shown.

Will show Field Name, Acres Covered, Implement Width, GPS Source, Number of Satellites, Heading, and Free Disk Space (Memory).

Will bring you to the main Settings page, where you can see your Vehicle, Implement, Guidance, GNSS (GPS), Data, and System settings.

Will let you zoom in, zoom out and change between Trailing and Birds Eye view



Touch to Open/Create Fields, create new AB Lines, and adjust Implement Settings.

Will bring up the Mapping menu, where you can mark Rocks, Trees, Weeds, Sloughs, Fence Lines, etc.

Your Auto Steer Status:
Red: Cannot Engage
Yellow: Ready to Engage Green: Engaged

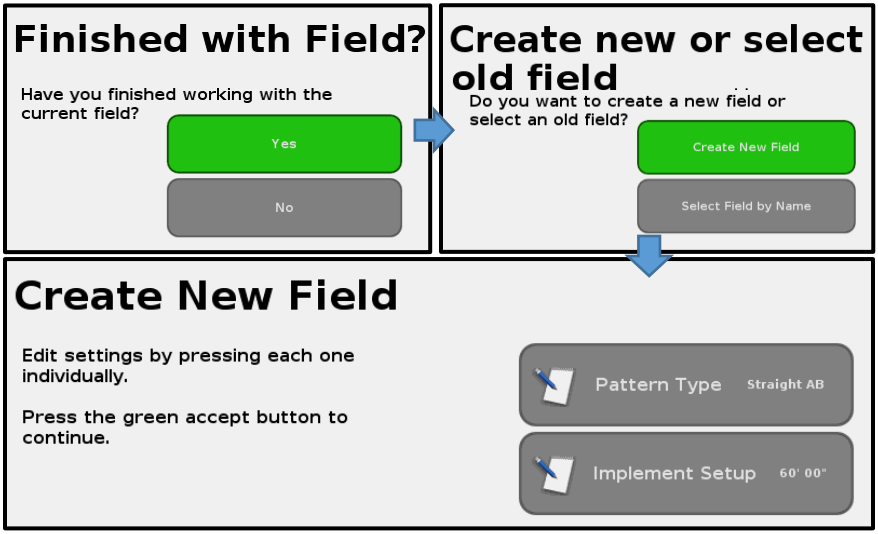
Your Painting Status:
Red: Not painting
Green: Painting

Getting Started

Making a Field

To Make a Field, push the

button on the main page. If you are currently working on a field you'll be asked "Are you finished with the field?". Select yes, and then press "**Create new Field**". The next page will let you choose your Pattern Type, and adjust your Implement Settings.

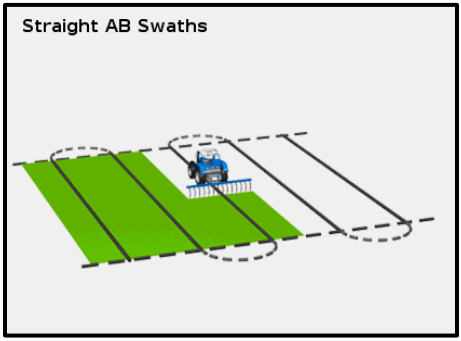


Pattern Type

For most fields, Straight AB and A+ are usually the best option.

Straight AB- Mark your **A** point, drive forward, mark your **B**. A line will form between the two points that your guidance will follow for the field.

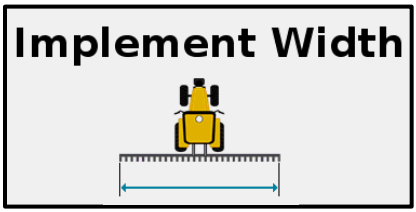
A+- Mark your **A** point then choose an angle to follow. 90 degrees is east west, 180 degrees is north south.



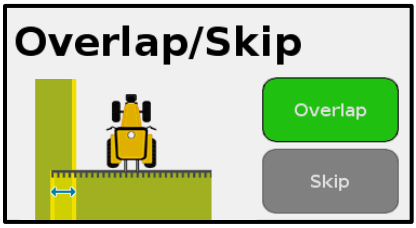
For the other options, Identical Curve, Freeform, etc. Press the "?" on the top right corner for more information.

Implement Settings

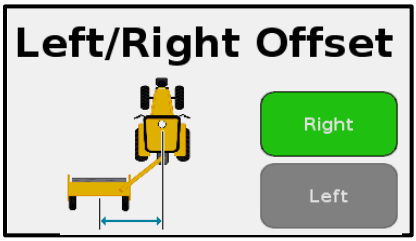
These menus are where you set up your implement dimensions.



The Implement Width is the total working width of your implement from shank to shank.

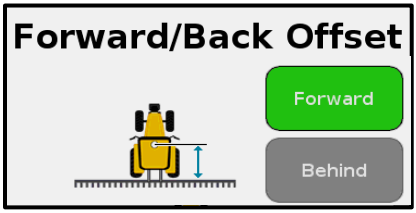


Select Overlap, and enter a value to set how much you will overlap pass to pass. Some overlap will be required to avoid misses. 10” is a typical setting Select Skip and enter a value if you intentionally want to have pass to pass skips.

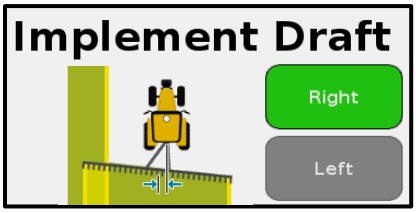


If the implement is wider to the left you will put a left offset.

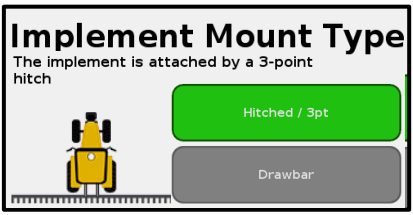
If it is wider to the right you put a right offset.



Measuring from the antenna, if the implement is behind the vehicle, measure to the far most point of the implement. If the implement is in front of the vehicle, measure to the most forward point.



If your implement pulls more to one side than the other, measure from the tongue of the vehicle to the center of the implement



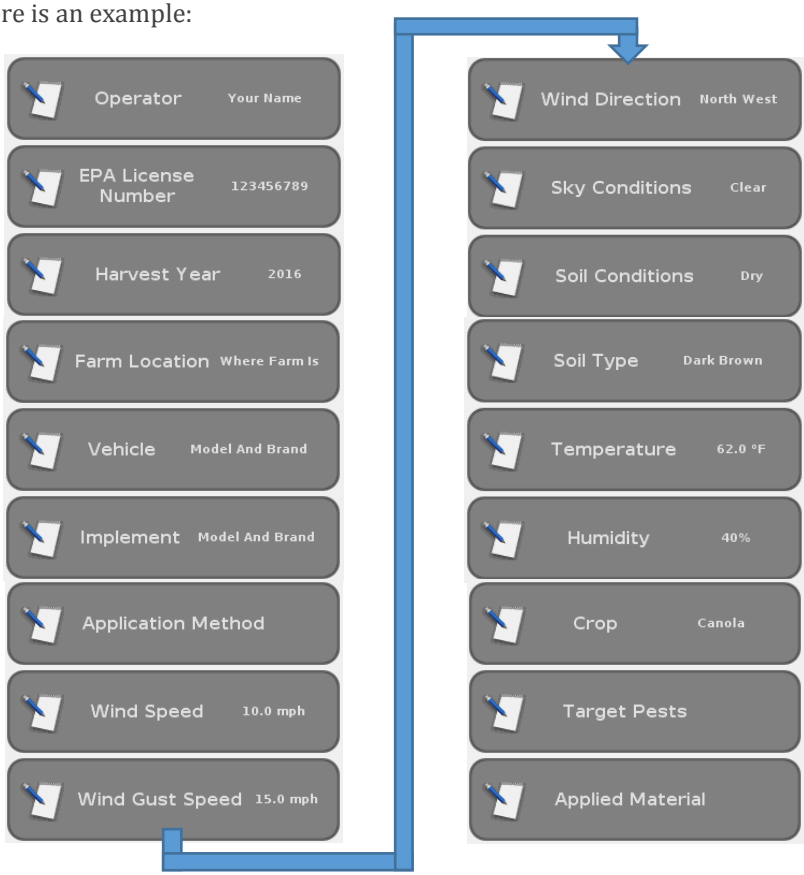
Select whether the implement is connected via drawbar, or 3 pt hitch.

Configurations

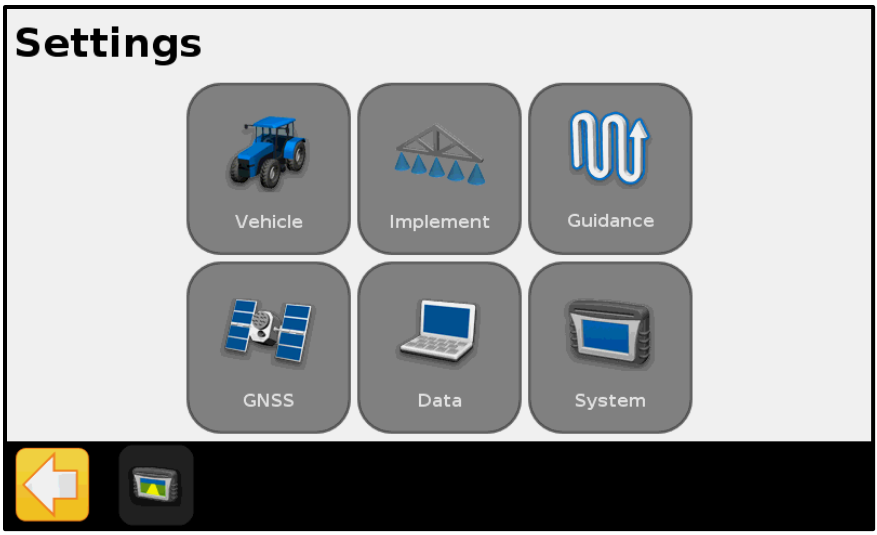
The next menu brings you Configuration page. From here you can set up your Client, Farm, Field, and Event. You can just select the arrow to accept default settings, but filling these out will help a lot if you need to go back and find a field in your display, or if you export your coverage/paint logs to your computer. Here is an example:

Record Keeping

The next menu after your configurations is a bunch of extra field info that you can enter if you wish, or leave blank if you are not into record keeping. Here is an example:

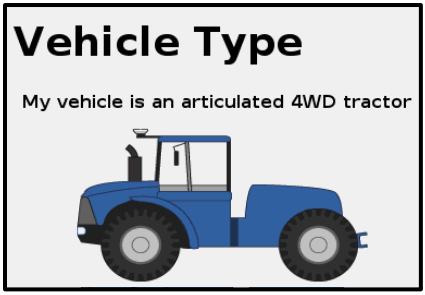


Settings Menu

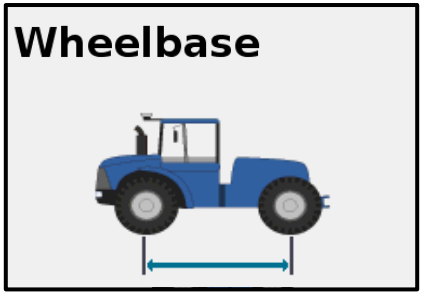


Vehicle

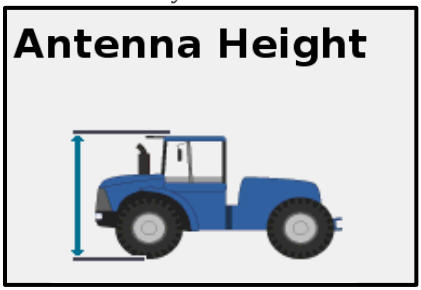
Vehicle Setup



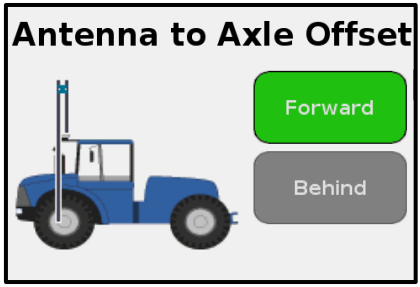
Choose your Vehicle



Measure from axle to axle



Measure the top of the antenna to the ground



Measure from the antenna center to the front axle center

(Measurement locations will vary per vehicle)

Auto Steer Setup/Calibration

In order to use your Auto Steer, calibrations need to be performed. To calibrate an EZ Steer System, follow these steps. First go to Settings:

Then choose Vehicle, and select Auto Steer Setup.

Next choose EZ-Steer/Manual Steer for your Auto Steer Type.

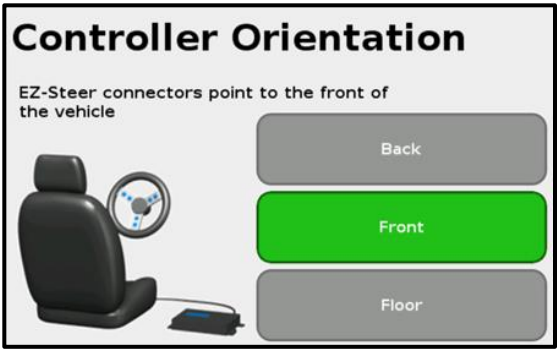
This will start the calibration.

Here you enter the vehicle dimensions. If you already entered them before they will be saved. (Reference Page 5)

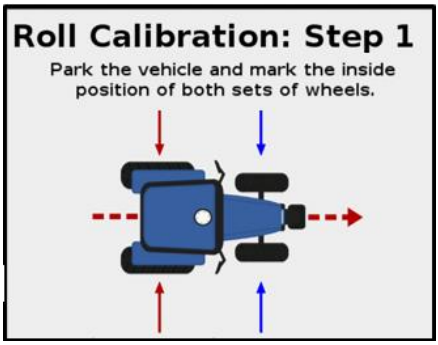
Calibrating the Roll Sensor

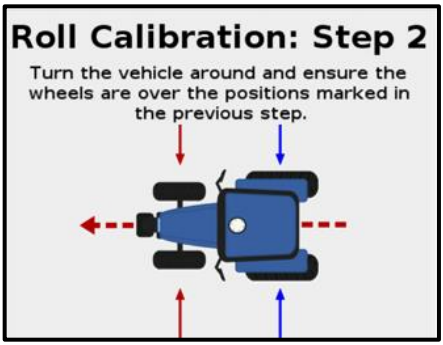
For the Roll calibration it is best to have 3 or 5 objects to mark your wheels and the center line of the vehicle (i.e pieces of 2x4, or anything visible from a tractor cab that can be safely driven over).

The roll calibration teaches the system where level is by recording the vehicles position on the same spot facing opposite directions. A proper calibration will help reduce misses and overlap pass to pass.



Select the controller orientation. The T2 Controller must face with the electrical ports facing exactly forwards, backwards or facing the floor, level with the machine, with the EZ-Steer logo facing forward. Failure to do so will result in a very poorly reacting steering system.



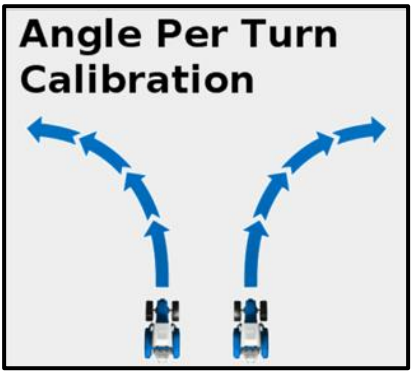


Steps for a proper calibration:

1. Once on the “Step 1” page, mark the location of each axle.
2. Push the green arrow, wait until it says “Step 2”, then drive forward and make a wide 180 degree turn and return onto the same tracks.
3. Your machines front axle should be where your machines rear axle was at the start of the calibration. (Note the colours of the arrows in the diagrams above.)

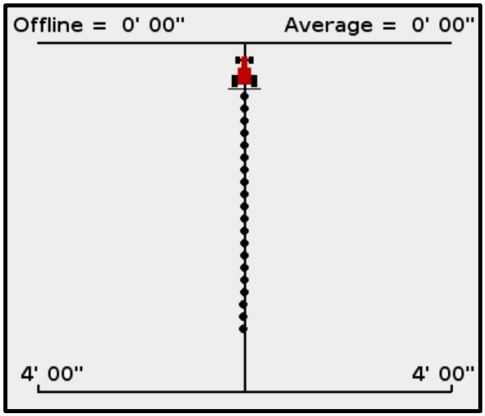
Angle per Turn Calibration

For this calibration drive straight forward between 2-4 MPH at field operating RPM. Push the engage (yellow steering wheel) and the machine will start to steer right. A countdown timer will indicate how long the turn will take. Once complete push the green arrow, and repeat for left calibration.



Fine Tuning Calibrations

In these last calibrations you can fine tune the Angle per Turn, Approach Aggressiveness, Online Aggressiveness, Freeplay Offset, Motor Speed, and Override Sensitivity:



Angle per Turn- This calibration number has one of the biggest impacts on how the machine is going to steer and react to follow the guidance line. It is the angle that the wheels turn during one full rotation of the steering wheel. Default is 20°. For most machines a value between **10°-15°** is ideal. Some swathers, and articulating high clearance sprayers can be hard to set. The lower the number, the more it will turn.

Approach Aggressiveness- This determines how hard and how fast the machine is going to try and lock onto the guidance line. The value goes from 50% to 150%. Default is 110% and a value between **90%-120%** is ideal for most machines.

Online Aggressiveness- This determines how hard the machine is going to try and stay online. The value goes from 50% to 150%. Default is 100% and a value between 90%-115% is ideal for most machines. (This number will need to be altered if the Angle per Turn calibration number is altered).

Freeplay Offset- Adjust this number if the vehicle is constantly on one side of the guidance line. It goes by inch intervals.

Motor Speed- There is an Auto, Maximum, High, Medium and Low Setting. For normal operation leave it on normal, for very fast operations put it on high, and for very slow applications put it on low.

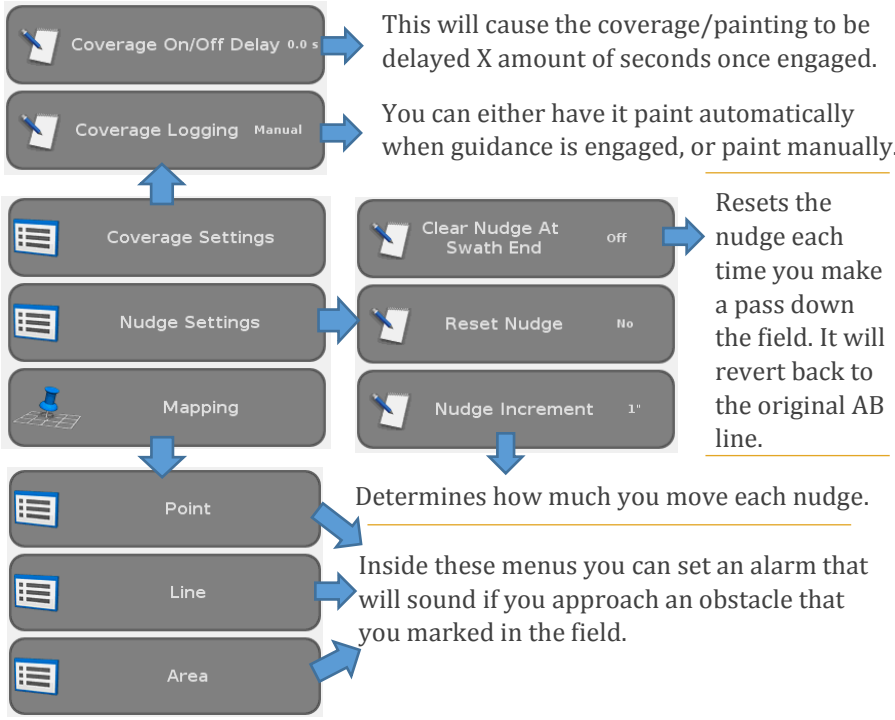
Override Sensitivity- How hard you have to turn the wheel before the steering will disengage. The values are from 1%-100%, with 30% being default. For most machines the ideal value is from **20%-30%**

Implement

For just guidance and mapping, do not enter this menu. You can edit your implement setting when you are starting a new field.

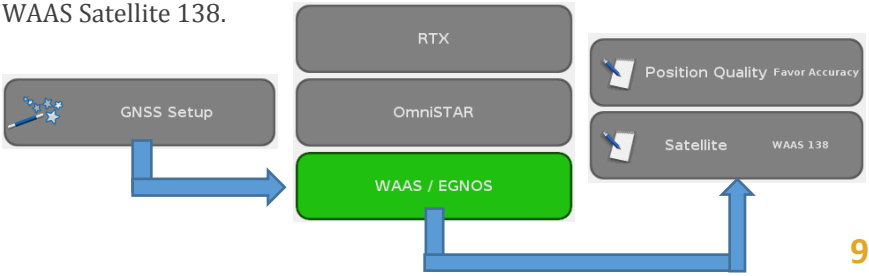
Guidance

Here you can adjust your Coverage, Nudge, and Mapping options, along with a few extras:



GNSS/GPS

The main use for this menu is to set up your GNSS/GPS and check its status. For optimal performance using standard WAAS satellites, for our region use WAAS Satellite 138.



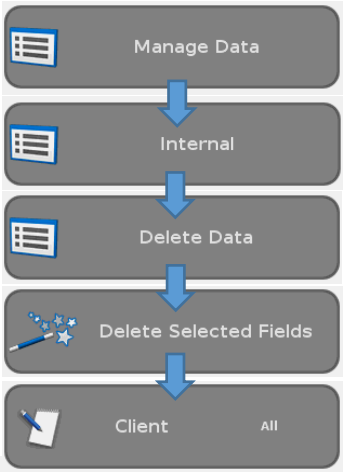
Soft and Hard Reset

On the rare occasion the display may need to be reset (For example, when it is going through a boot loop cycle). To so a soft reset, make sure the display if powered off. Turn it on, and the bars will go by the bottom of the screen once, then on the second time the bars pass, when they are 1/3 the way past the screen hold down the power and the increase brightness at the same time on the back of the display. The bars will reset on the bottom and slowly make their way across the screen. The same procedure applies for a hard reset, except hold down the power, increase brightness and decrease brightness button at the same time. **Note: Only do a hard reset when a soft reset doesn't work. <u>You will lose all calibrations and saved fields</u>.**

Data

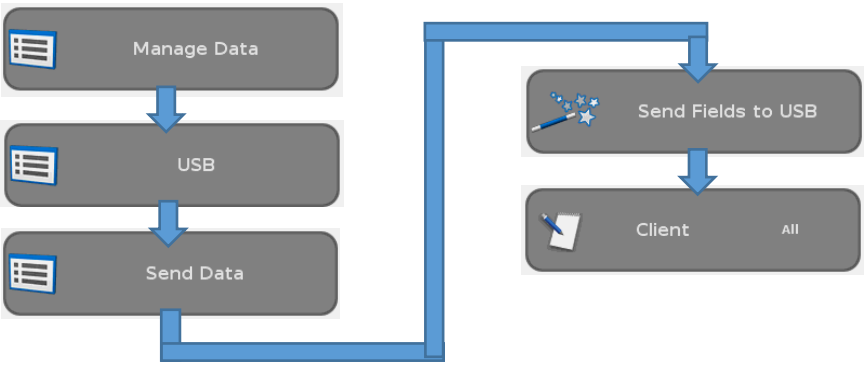
It is important to maintain the memory of your display by deleting fields at the end of the growing season. An overloaded memory may cause the display to crash repeatedly.

Deleting Fields-Save your data to USB (see below) if you plan to keep your coverage data. You can choose to delete Coverage Logging, or whole Fields. If you name Fields just delete the coverage logs. To delete ALL fields off the display, follow these steps:



If you want to delete certain fields, select the proper Client, Farm, and Field.

Sending Fields to USB- To send files to a USB, follow these steps:

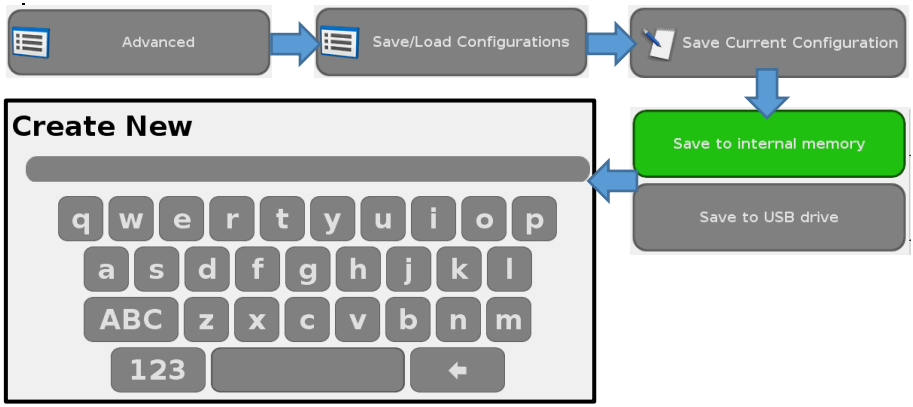


If you want to send certain fields, select the proper Client, Farm, and Field.

System

In the System Menu, you can see the current firmware, enter unlock codes, recalibrate the touchscreen, and save your vehicle configurations

Saving Configurations- **IMPORTANT:** Saving vehicle configurations can save measurements and calibrations for multiple machine. Having the Configurations saved to a USB will make it easy to replace a failed display and save valuable time. Follow the steps below and the "Create New" page, give a name to the machine that the measurements and calibrations belong to.



Save the configuration to the memory also. To recall a configuration choose "Load this configuration"

Unlocks/Upgrades

There are a couple different unlocks/upgrades you can do to the display. You can upgrade the GPS accuracy, and make it capable of rate controlling applications, section control and more.

Field IQ

Field IQ is a Trimble variable rate applications, automatic section control, boom height control, seed monitoring, and spinner speed control. There are kits compatible with many different machines. Call your PF Specialist to learn more.

Accuracy Upgrades

Rangepoint RTX and Centerpoint RTX are enhanced correction signals that offer improved levels of accuracy to reduced downtime compared to WAAS.

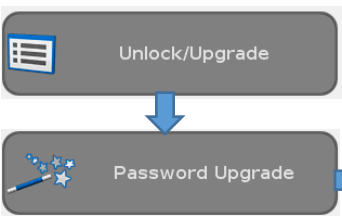
Correction Signals	RangePoint RTX
Pass to Pass Accuracy	< 6"
Repeatable Accuracy - *Next Year*	< 20"
Initialization/Convergence Time	
GLONASS Compatibility	X
Vertical Applications (ie: Tiling)	
Radio Base Station Signal	
Satellite Signal	
Cell Modem Signal (via Internet)	
Pricing (per Year)	Contact Us
Pricing (per 3 Months)	Not Available

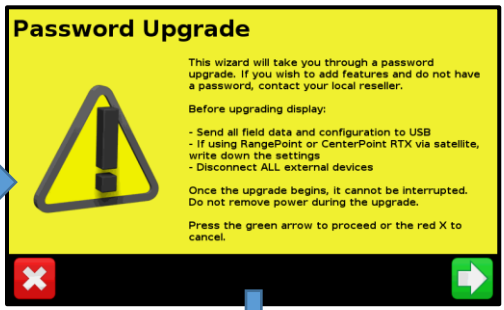
Correction Signals	CenterPoint RTX (Standard)
Pass to Pass Accuracy	< 1.5"
Repeatable Accuracy - *Next Year*	< 1.5"
Initialization/Convergence Time	> 10 min
GLONASS Compatibility	X
Vertical Applications (ie: Tiling)	
Radio Base Station Signal	
Satellite Signal	X
Cell Modem Signal (via Internet)	
Pricing (per Year)	Contact Us
Pricing (per 3 Months)	Not Available

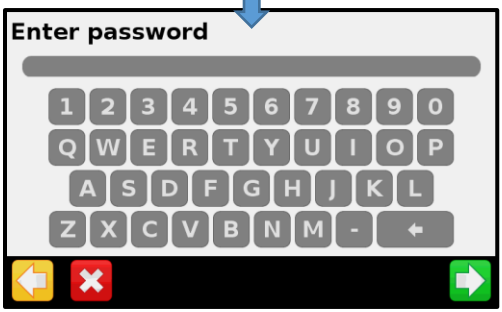
Centerpoint RTX requires a receiver unlock, and a yearly subscription. Rangepoint RTX requires a subscription but no unlock. Your PF Specialist can provide you with the necessary passcodes and current pricing.

Entering Unlock/Upgrade Codes

Under the System menu go to:







When entering an accuracy unlock/upgrade, you will have
to go back into your GNSS/GPS tab and change it from WAAS, to Rangepoint RTX, Centerpoint RTX, or whatever other accuracy subscription you purchased. (You also may have to change your satellite baud rate and MHz, depending on your location. See p.14 for details).

Make a Record of Your Calibration

It is a good idea to write down your calibration numbers in case something happens to the display. To find your calibration numbers go to Settings-Vehicle-Auto Steer Setup-EZ-Steer/EZ-Pilot Setup and you will find all these settings in Engage Options, Vehicle Options, and Aggressiveness.

Roll Angle: **Angle Per Turn:**

Approach Aggressiveness:

Online Aggressiveness: **Freeplay Offset:**

Motor Speed: **Override Sensitivity:**

Troubleshooting

Machine Slowly Weaving Back and Forth: 90% of the time this is because of Angle per Turn setting. First try decreasing the calibration number, then test it. If it works better, fine tune the aggressiveness also. If it gets worse when decreasing, try increasing.

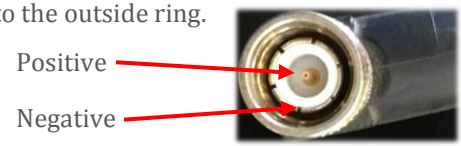
Touchscreen is Misaligned- To do a touch screen calibration go to Settings-System-Recalibrate Touchscreen. Using a dull pointed object (i.e a pen) lightly press each crosshair. It may take more than one attempt to recalibrate the touchscreen.

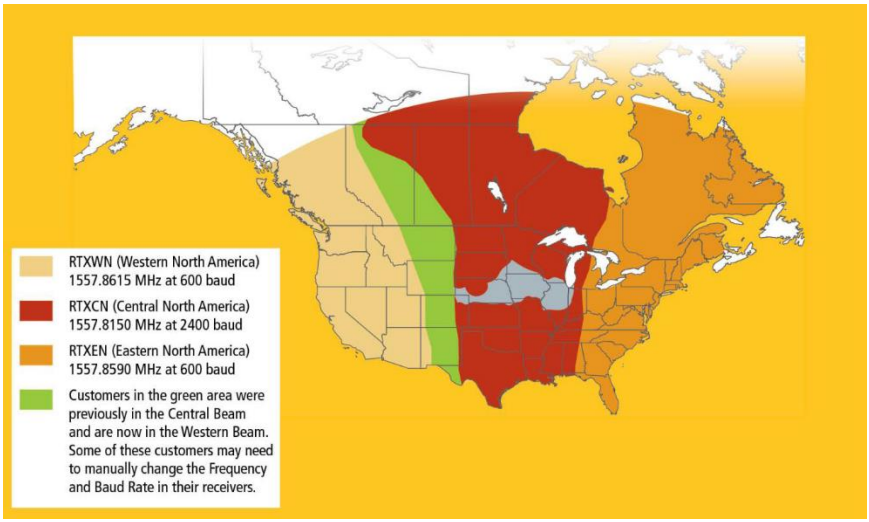
EZ-Steer No Terrain Compensation Error- This is usually caused by a under voltage to the T2 Terrain Compensator box. Clean all your connection on the battery then try again. Sometimes turning on your headlights, or using a CB radio can cause a voltage drop for a second, and cause the error to pop up, requiring a restart in both monitor and T2.

Boot Looping- If your display is constantly turning on and off, or just keeps reloading the bars on the bottom of the screen while booting up, a soft reset may be required. Follow steps on pg.10 for a soft reset procedure. **Caution:** This could cause you to lose your calibration settings.

Misses Pass to Pass- This is usually your roll calibration. Follow steps on pg.6 and 7 to re-calibrate. Try to get a value as close to zero as possible.

Can't Lock onto Satellites- Check your antenna cable voltage. Unscrew your antenna connection, and touch the positive end of a volt meter to the center prong, and your negative to the outside ring. You should have 5 Volts.





Contact Us

For any problems or questions about the display, call into one of our five locations in:

- **Assiniboia**: 1-306-642-3826
- **Estevan**: 1-306-634-9444
- **Pangman**: 1-306-442-2033
- **Radville**: 1-306-869-2277
- **Weyburn**: 1-306-842-6626

Or contact the PF/ GPS Specialist directly:

- **Zachary Fradette**: 1-306-891-8037 (Weyburn and Surrounding Area)
- **PF Specialist:** 1-306-640-6685 (Assiniboia and Surrounding Area)

www.ebourassa.com