OWNERS MANUAL

RC351 Controller

Rev 01.62>

Manufactured by: **Dealer / Local Agent**

:

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Contents

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Introduction

Congratulations on purchasing a Taege RC351Controller rev 01.6>> Taege Engineering Ltd, a market leading agricultural company, which prides itself on developing leading edge solutions demanded by New Zealand farmers and contractors.

Taege Engineering Ltd wants you to be satisfied with your product, which has been designed and manufactured to provide years of dependable use.

By following our owner's manual (using, service, maintenance etc) the life span and the second-hand value of the machine can be extended. If you ever lend or sell this machine, make sure that the borrower or buyer gets the operator's manual, so they will also know how to properly maintain and use the machine. You can download additional copies of your owner's manual from www.taege.com.

Please quote your controller version when seeking advice or ordering parts.
(EVE$) RC351 Firmware rev. 01.63 Sn#:4001

Thank you for purchasing a Taege Controller. Taege Engineering Ltd has a policy of continuous product development and therefore reserves the right to modify the design and appearance of products without prior notice.

Disclaimer

The information in these instruction sheets may or may not apply to your controller.
Please check that your Controller is the correct model and version.

In using this information, you acknowledge that such information and materials may contain inaccuracies or errors and we expressly exclude liability for any such inaccuracies or errors to the fullest extent permitted by law.

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Starting the Controller

Plug in the RC351 Controller and make sure that the power supply to the machine is connected.


Connect all the cables to the machine.
When the RC 351 Controller is powered up it always starts in the "Stopped" mode on the "Front" hopper.

Selecting the Crop

When you press the "Select Crop" button, a crop list shows for that hopper. (1) Front.
Select the crop and if you wish press "Edit", name the crop, and enter the target weight. At any stage, you can "Cancel" and stay with the original name and setting or "Save" the new name setting. The controller will always ask you to "Select" even if no change is made. Repeat if the second, third and fourth hoppers are fitted.
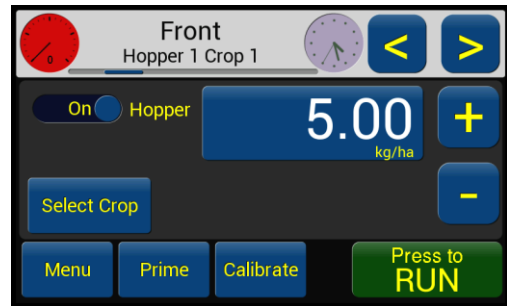
The **"+"** and **"-"** buttons increase or decrease the "kg/ha" in both "Press to RUN" and "Press to STOP" modes or touch the **"kg/ha"** button for large changes. Weight changes will not occur until **"OK"** has been selected.

The "Menu", "Prime" and "Calibrate" buttons at the lower part only operate when the machine is "STOPPED" and are more functions. (See below page 8 Additional functions)

"Prime" primes the selected hopper.

Calibrating (or Go to Quick Calibration)

"Calibrate" takes you to the calibration screen for the selected hopper and selected crop.
On this screen, you can select the calibration "RPM" and the run time in "Seconds" for the hopper selected.
Please follow the screen instructions (See "Calibration" 1, 2, 3, 4. or "Cancel").
When the calibration weight has been entered, the controller will revert to the **"Hopper"** screen, in the **"Stopped"** mode.
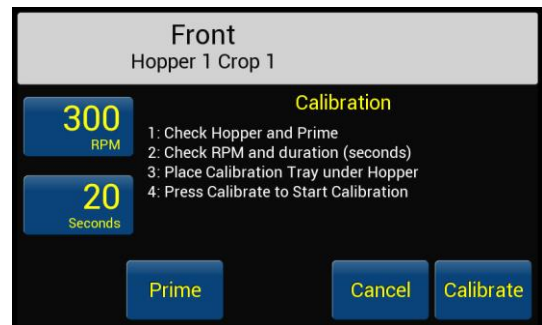

When calibrating please check that your "RPM" is similar to the real-time working speed of the motors and the sample collected is more than 40gm for small seeds, about 800gm for grass seed, cereals 1500gm and 2500gm for fertiliser.

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Quick Calibration

1. **Choose the hopper you wish** to **calibrate by using "<" or ">".**

2. **Move the collector tray and place the calibration tray under the sponge rollers and press "Prime" and make sure all rollers are dispensing seed, then empty the calibration tray.**

3. **Press the "Calibrate" button. You will see the seed collecting in the calibration tray and the sample bar on the controller counting down.**

4. **Weigh the product collected using the scales**
5. **Press "Weight" and enter the weight of the sample in grams.**
6. **Press "Ok"**
7. **Press "Ok" again if correct**
8. **Enter the sowing rate by pressing "kg/ha" or by pressing the "+" or "-"**

Select any other hopper/s and go back to 1.and follow the procedure again. Always check that all selected hoppers are **"On"** Then press

> **Press to RUN**

You are now ready to drill.

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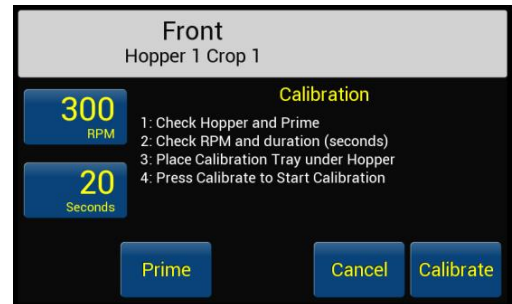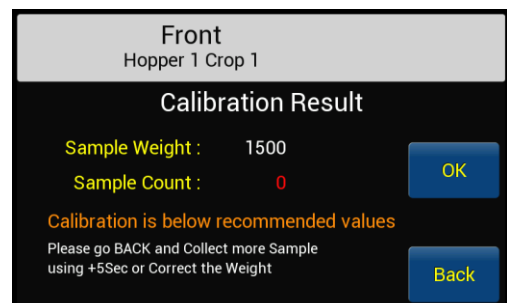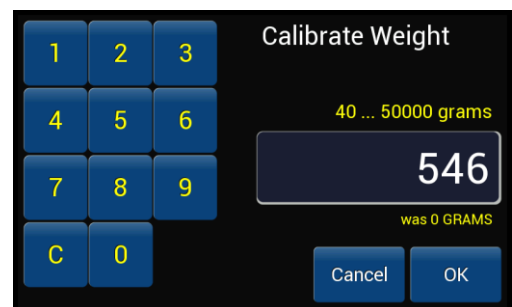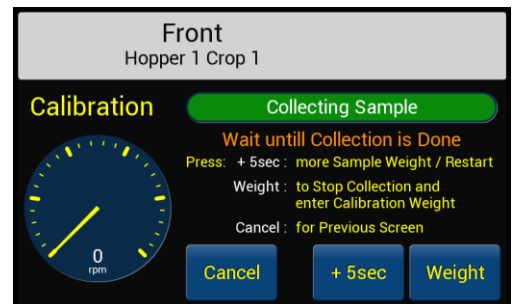
Calibration Check

1. **At anytime you can test the calibration setting by using the following method.**

2. **Choose the hopper and crop to be tested.**

3. **Lift the wheel or jockey wheel into a free running position**

4. **Then on the controller screen press "Menu"**

5. **On the menu screen press "Area Reset"**

6. **Press "Yes"**

7. **Press "Back"**

8. **Press** [Press to RUN]

9. **Move the wheel in the direction of travel until the "ha" on the controller records 0.010 ha and then stop the wheel. Weigh the amount of product, this should equal about 100th of the "kg/ha" target seeding weight**

If it is within 10% use the +/- button to increase/decrease the target seeding rate,
Then check the weight again but if there is more than a 10% difference. Recalibrate

If you are testing a double hopper system, you may need to turn off the hoppers you are not testing to save spilling the contents during the test.
Do this by turning the levers on the other gearbox/s to the horizontal position or by turning the hoppers off on the controller. Always remember to turn the hoppers on again.

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Operating the Controller

When [Press to RUN] is selected the Controller changes to the **"Area"** screen and the button changes immediately too [Press to STOP]

All operating screens have **"Running"** showing on the screen, showing that the machine is operating. The **"Area"** screen shows all functions in *"Real time"* and the controller shows all hoppers that are calibrated and operating, the **"rpm"** and **"Target Weight"** indicator bar.

(Air Seeders if the fan monitor is fitted the **"rpm"** for the **"Fan"**(turbine) shows in the top left of the screen. The fan rpm monitor will change to red if slower or faster than the set rpm and will give a warning sound. If pressed will show a larger **"Fan Status"** screen).

WARNING
If a motor indicator shows "Red" "Wrong seeding will occur" the "Alarms" will sound and the alarm button will be active. Pressing the "Alarms Active" button will silence the sound but the controller will continue to flash "Alarms Silent" until the operator corrects the motor fault. The alarms will then go to "Alarms OK"
"STOP" mode.

When [Press to STOP] is pressed, the controller goes to the "Stopped" screen and the button changes immediately to the green "Press to RUN" button and stays in "Stopped" mode until the [Press to RUN] button is pressed.
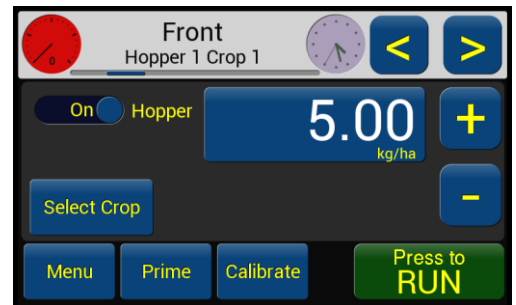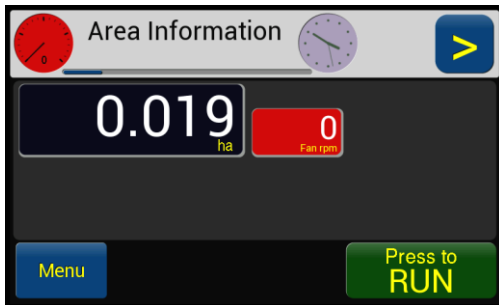
Hopper On/Off button
When the controller is turned on for the first time, all the hoppers are off, and need to be calibrated. The controller will remember your calibration settings and then will start with the last known settings. If the hopper is not calibrated it will not turn on.
When a hopper is **"Off"** a red cross will appear on screen for *that* hopper and the hopper will not operate but can still calibrate.
In the "Operating"(Area) screen the condition is shown in white **"Front is Off"** etc and if selected the "Alternate" button for that hopper shows a red cross and the hopper remains **"Off"**

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Controls

On this screen, slide controls **for "Brightness",
"Volume"** and "**Run fall-back**" are visible,
These controls are available in both the **"GO"** and
"STOP" modes.

Use the "Brightness" control to dim the screen when
required. (1 – 100%)

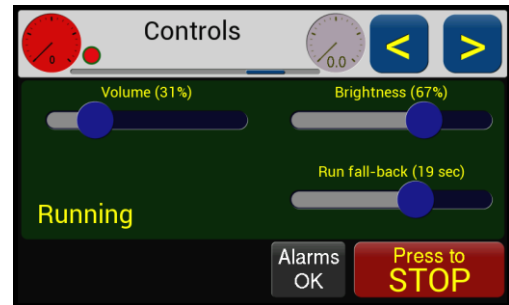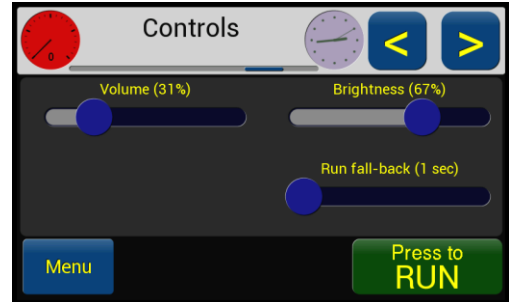The ("Fall-back) time from (1 -30 seconds)

The volume adjusts from 30% to 100%

Control Conditions

WARNING
On an Air Seeder if the "Fan" is not in the range set by the operator in the "Fan" "Controls and Settings" the Air Seeder will not operate and when operating will "TURN OFF"
**If the "Fan Monitoring" is "Off" there will be no warnings of any kind.**

Select Crop and Renaming
This is where you can individually select and record up to
six different crops, names, target weights and calibration
for each hopper.
1. Select the hopper
2. Press "**Select Crop**" and the controller goes
    immediately to a list of six crops that can be renamed
    for that hopper
3. Select the crop entry you wish to use and rename, the
    crop entry will highlight
4. Press "**Edit**"
5. Press the highlighted "**Crop**" entry again, the editing
    screen will show
6. Use the "**backspace**" key to clear the present crop
    name
7. Enter the new crop name using the key board
8. Enter the target sowing **Weight** (if you wish)
9. Press "**Save**" the name will be saved
10. Complete by pressing "**Select**" and then calibrate.
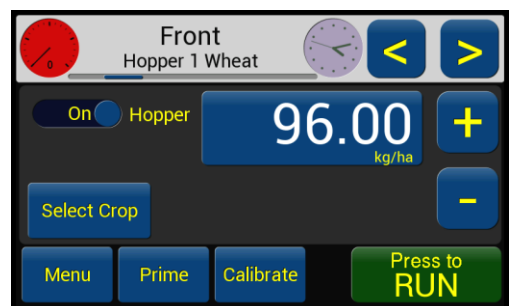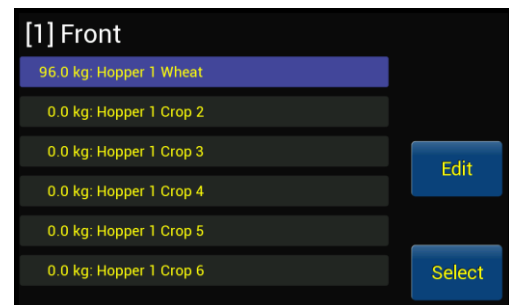
Menu

"Menu" takes you to more screens that enable you to configure, diagnose and utilise the controller's other functions.
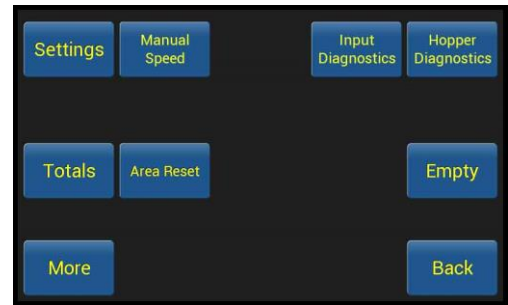
"Settings" shows the operator the actual settings for the machine. This is a display screen only.
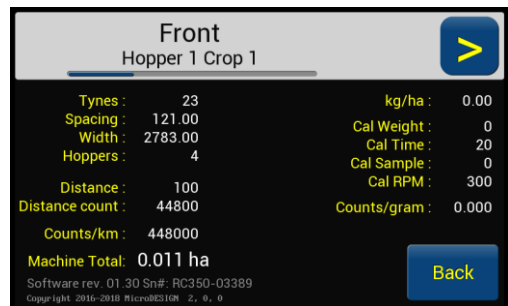The left side of the screen shows the machine **"Configuration Settings"** and the machine **"Total"**
On the right side the calibration settings for the selected hopper.
Press **">"** or **"<"** to select other hoppers and when you have completed this task, press **"Back"**.

"Manual Speed" go to page 15 for instructions.
For assistance with configuration, please contact your Taege Dealer.

"Input Diagnostics" goes to the **"Inputs Diagnostics"** screen which enables the operator to verify that all inputs are operating. The indicators will count and flash **Red/Blue** when operating and will stay either **"Red"** or **"Blue"** without counting when **"Faulty"**.
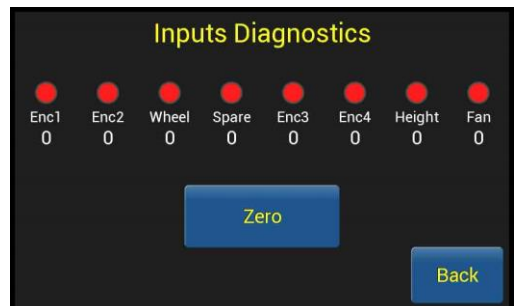
"Hopper Diagnostics" allows the operator to verify speed **"RPM", "Pwr"** and **"Cnt"** for the hopper selected. Always disconnect the gearbox. This is the lever under the motor. The operator can nominate the RPM using the **"Set RPM"**. The **"<"** and **">"** buttons enable you to select other hoppers. The controller will show the newly selected hopper in the **"Off"** condition and so on for other hoppers. When you have completed this task engage the gearbox and press **"Back"**.

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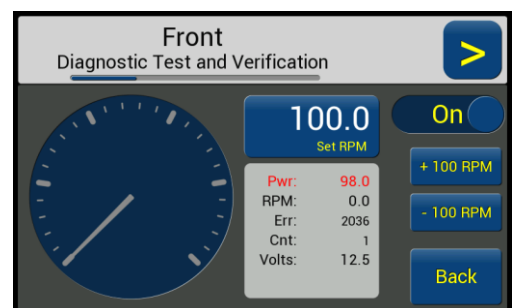
Press the **"Totals"** button and you will see this screen.

This shows the **"Select Crop To View"** screen.
Select the hopper you wish to view by using **">"** or **"<"** buttons**.** This screen shows the hopper's current name, crop name, the accumulated area and the sowing rate in kg, for the active crop and the 6 other recorded crops for that hopper.
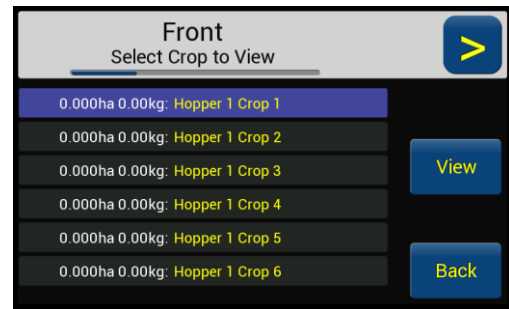
Press **"View"**.
Shows the last 8 records **("ha - kg - date - Time")** recorded for that hopper, if there are more than 8, the oldest record will drop off the list.

The **"Save to Log"** or **"Zero Total"** Buttons now show. Choose either No or Yes.

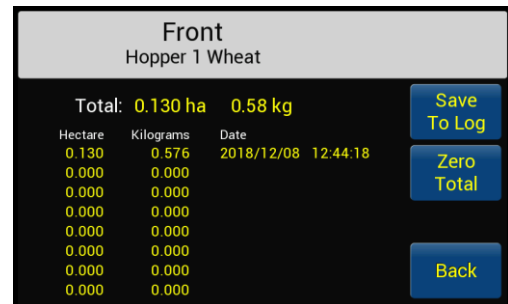When **"Save to Log"** is selected and actioned, the crop totals will be saved to the log and the **" ha - kg - date"** will be recorded in the log and can be viewed on the **"View"** screen. This does not reset the totals.

When **"Zero Total"** is selected, and actioned the current total for this crop will be zeroed and discarded and cannot be recovered.

"Area Reset" when selected shows **"No"** which reverts to the "Menu" screen and **"Yes"** which resets the current crop area "ha" screen.
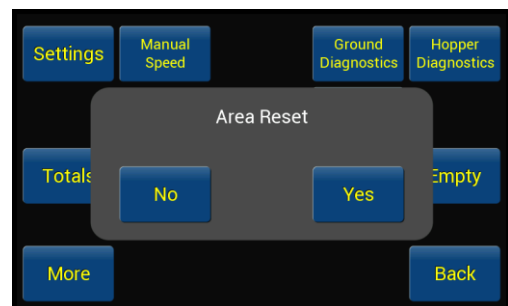
"Empty" goes to the "Run Hopper to Empty" screen
This screen allows the operator to nominate the "rpm" and time in seconds for **"Run Hopper to Empty"** for the selected hopper only. The "Off/On" button allows overall control of this function. When turned on the hopper will run for the nominated time unless turned off. Use the "<" and ">" buttons to select the correct hopper

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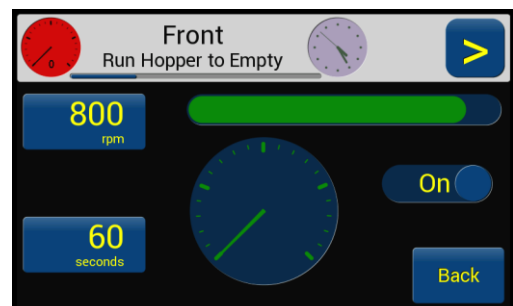
Manual Speed

"Manual Speed" is used as a limp home mode if you damage both or either the wheel input or the height switch in the field when operating. It enables the operator the drive at a set speed and manually operate the machine using manual overrides.

To access the **"Manual Speed"** press the **"Menu"**

Press **"Manual Speed"** turn either **"On" or "Off"**. Then press **"Back"**, the controller will add the additional changes to the operating screen.

When this selection is operating, the controller offers 4x combinations.

1. If your machine has lost wheel signal only, then only turn the **"Manual Speed" "On"** and select the speed **"Speed km/h"** you wish to travel at, the height switch if fitted will still operate.
2. If your machine has lost the height switch only, then only turn the **"Manual Up/Down" "On".** This will put an **"Up" "Down"** toggle switch on the **"Area"** screen all other functions of the machine still operate.
3. If your machine has lost both the height switch and wheel signal toggle both switches to the **"On"** position to operate manually.
4. If your machine has both the height switch and wheel signal, toggle both switches to the **"Off"** position. The machine will operate normally.

On this screen **"Enable PreCharge"** is also selected. This feature may be used with either standard drills or air seeders.
When operating this feature. Set both the speed and time. If you then tap the "Pre-Charge" area of the screen, the machine will operate at your preset speed and time. To stop "Pre-Charge" tap the screen again in the same area. Once the forward speed of the machine is attained the ground signal will take over.

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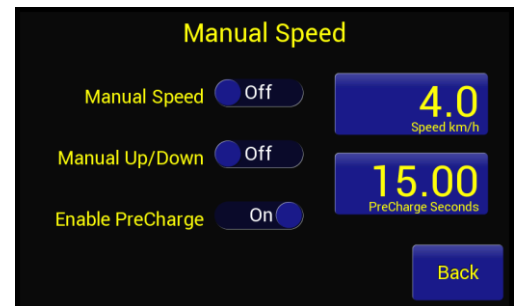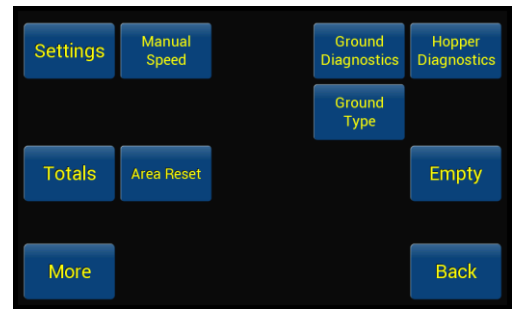
More

"More" takes the operator to **"Controller Configuration"** screen.
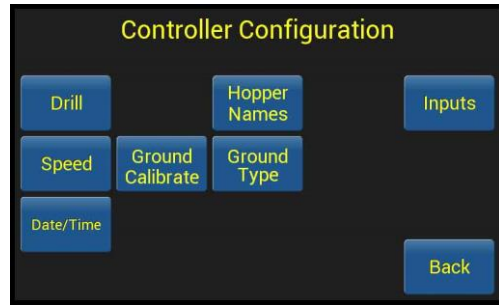
"Drill" button takes the operator to the "Drill Settings" screen. This screen is only active in the "Stopped" mode and should only be altered when the operator is changing from one machine to another or in contact with either their **Taege Dealer or Taege Engineering Ltd technical person.**
Some controllers require a **"password"** to access this screen.

"Hopper Names" When selected shows the available hoppers. Normal editing procedure is used.
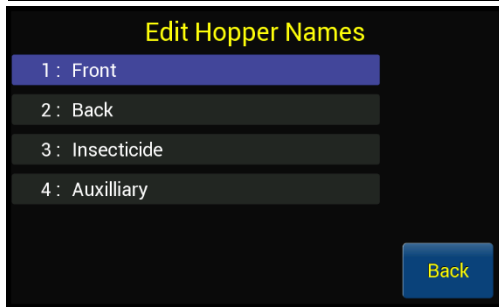
"Inputs" Take you to **"Inputs Configuration"**. This is where the controller is configured to accept "**HiZ**" (High impedance), **"PNP"** (Pull Up) and **"NPN"** (Pull Down) type sensors and Height Switch (Normal or Inverted).
"Speed"
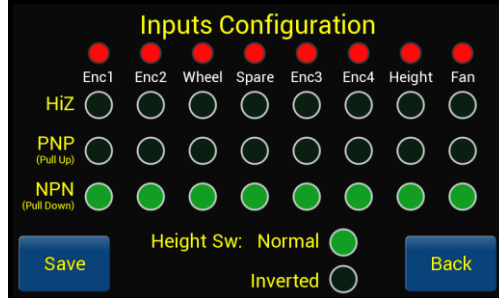
Speed/Power Settings
These settings are for Speed(kph) & Power settings (Colour) and alarms for operator alert & response.
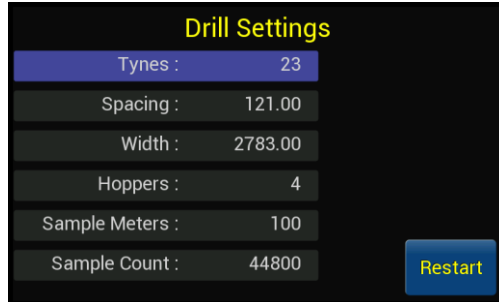
Speed/Power Settings can be changed on this screen. The range settings are in km/h at default standard settings and show green, then orange then red.
The Operator may need to change these settings to suit their particular operating conditions.
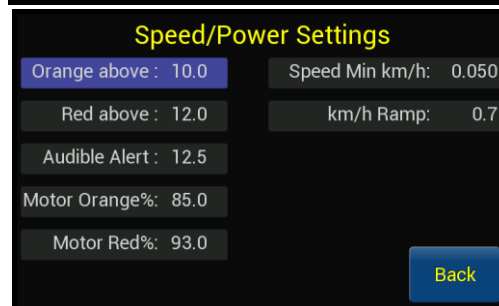
Select a highlighted colour setting and edit the speed settings (3) for the **"Km/h"** and percentage for motor the orange and motor red settings.
Speed Min km/h normally **0.050km/h** and **km/h Ramp** normally **0.7.** If the Ramp is set at **0.0** the motors will not operate.

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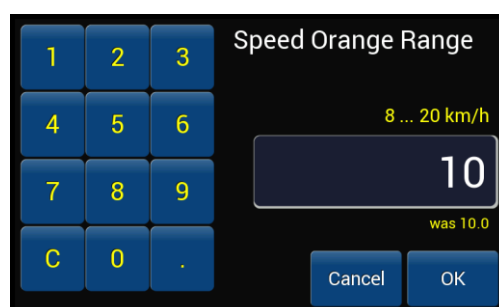
Fan (Air Seeder)

"Fan" "Controls and Settings"

The **"Stopped"** mode is where you set the parameters for the Fan "Alarms"(Turbine)

"**Minimum RPM (0-5000)"**

"**Maximum RPM (0-5000)"**

When selected and operating, and below the minimum rpm the dials will show "red" on both the top indicator and the **"Fan rpm"** "white" on "blue" when in the operating range and "red" when over speed and out of range.

When operating in range, and the fan rpm indicator is touched the **"Fan" "Status"** screen will show then go back to the operating screen.

"Fan Monitoring" "Off" locks out all alarm response for the fan rpm and can only be changed in the **"Stopped"** mode.

When the "Fan" is operating, the Air Seeder will not calibrate.

If the "Fan" is not operating, the Air Seeder will not "Prime" and will not operate and displays the following.

Ground Calibrate when selected selects the "Ground Input" screen.
This where the distance calibration is set and depends which type of sensing device is fitted.
General settings

Encoder	Sick optical	43750
	Taege magnetic	44800
Sensor	Jockey wheel	5000
Radar & GPS		25600

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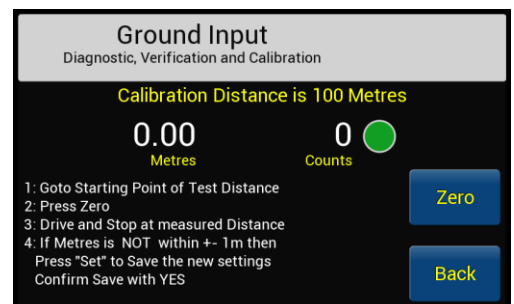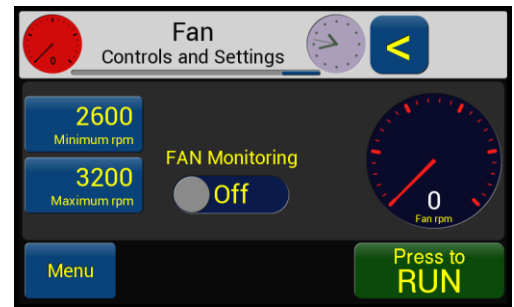
Additional Configuration

Please contact your **Taege Dealer** to access this screen.

When **"Debug"** is selected the firmware information shows at the bottom of every screen and should only be active when a technician is upgrading firmware for the controller.

Alternate (Optional)

When the **"Alternate Rate"** is selected, the operating screen will show an alternate button for each hopper fitted to the machine.

1. When the "blue" "Normal" button is selected the button changes colour to" green" "Alternate" and the rate on the operating screen changes to "white" on that hopper.
2. When the button is pressed again, it returns to "blue" "Normal" and the seeding rate returns to the normal rate.
3. In the operating mode with the hopper screen selected, the "Alternate kg/ha" shows "green" the alternate weight can be increased or decreased when the "+" "-" buttons are "Green".

When **"Show Clock"** is selected, the clock will show on screen in the stopped mode.

Show Fan RPM.

Selected on all Air Seeders. When **"Show Fan RPM"** is selected, all "FAN" monitors, air settings and alarms become active.

Fan Rotor Edges

Normally set at 4. Depending on the type of sensor and rotor.
.

Factory Reset

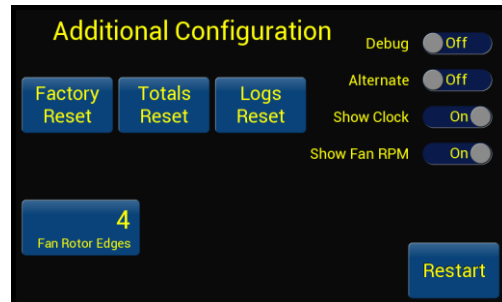When the **"Factory Reset"** is selected and **"Yes"** is pressed all configuration settings and memory may be lost and are not generally able to be recovered.

Totals Reset

When the **"Totals Reset"** is selected and **"Yes"** is pressed all totals are reset and are not able to be recovered.

"Logs Reset"

This resets all logs and is not recoverable.

Restart

When **"Restart"** is selected, the controller restarts and accepts all and any changes that have been made in the "**Additional Configuration**" screen.

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Warning Screens

Kg/ha Warning

kg/ha has a restriction on the maximum weight at 1500kg/ha and minimum of 0.01 kg/ha.

Speed Warning

The machine will not operate under 0.050 kph and will warn when at the **"Speed/Power Settings"** are exceeded.

Calibration Warning

During calibration the controller warns if calibration weight or sample count are outside the recommended settings but will accept your figures, even though outside those recommended parameters.

Additional Configuration Warning

Additional configuration settings are available when the RC350 Controller is replaced or moved to another machine or application. These can only be accessed when a Taege Dealer or Taege technical person has been contacted.

Fan Speed Warning

Low rpm and over rpm warning if the machine is outside operator parameters.

Disclaimer

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In using this information, you acknowledge that such information and materials may contain inaccuracies or errors and we expressly exclude liability for any such inaccuracies or errors to the fullest extent permitted by law.

Before contacting your **Taege Dealer** for assistance, please correctly identify your machine and controller.

Warning

Do not weld on your machine unless you have disconnected the tractor 12vdc power source, the controller and the motor/s connector plugs.

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Ground Type

This screen is where you select the terrain type that best suits your property.
The left column is where you select the ground surface type.
The next column is where you select the type of topography.

The default settings have been set using extensive information and the collection of user data over several years. The settings for the defaults are as follows.

SURFACE		TERRAIN	
Normal	1.0%	Rolling	1.5%
Smooth	0.0%	Flat	0.5%
Rough	5.0%	Steep	3.5%

All expressions are in percentages (%) of your target rates.

All of these figures are able to be adjusted for your particular property and all effect the sowing rates of your drill or seeder.
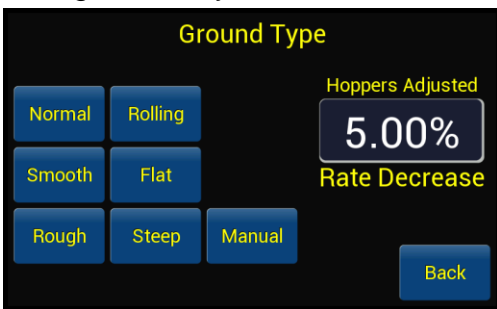
You can override these settings using the manual rate which may cause the drill or air seeder to **OVERSEED.**

Firmware Upgrade

This screen is used by a technician to upgrade your controller when available.

If accidently selected please follow the instructions on the screen.

For further information please contact your Taege Dealer.

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Glossary

Button Name	Button Function
-	Reduces the kg/ha
"Front" Diagnostic Test and Verification	Information on a motors performance
+	Increases the kg/ha
Alternative	Sets Alternative weight function on / off
Area Information	Area covered since last "0" setting
Area Reset	Resets the hectare settings
Back	Goes back to the previous screen or setting
Calibrate	Calibrates the selected hopper
Calibration	Product dispensed over a period of time
Cancel	Cancels the present setting or entry
Cnt	Count
Controller Configuration	Settings which apply to this machine. (varies)
Controls	Brightness and Fall back and volume
Counts/km	Pulses over distance
Debug	Identifier for "Tech only"
Debug	On / off Used for software identification
Diagnostics	Diagnose any machine electronic problems
Distance count	Pulses over given distance
Empty	Empty the hopper using the electronic control
Err	Deviation from a given point
Factory Reset	Go back to factory settings
Front	Front
Ground diagnostics	Method of checking or entry of numbers
ha	Hectare
HiZ	High Impedance (for use with Radar)
Hoppers	Bins, tanks or hoppers on the machine
Inverted	Changes switch. Up to down. Down to Up.
kg/ha	Kilograms per hectare
Menu	More functions available
More	More functions
No	No
N-P-N	N-p-N sensor type (Pull down)
Off	Off (not operating)
On	ON (machine operating or test in operating mode)
P-N-P	P-n-P sensor type (pull up)
Press to RUN	Puts the machine into the operating mode
Press to STOP	Stops the machine operating
Prime	Primes the selected hopper
Pwr	Power
Restart	Full restart of controller
Running	The machine is operating
Sample Count	Weight of product collected over a period of time
Sample Meters	Number of pulses over a given distance
Save	Saves new settings
Seconds	Time in seconds
Select Crop	The crop selected in the crop list for that hopper
Set RPM	Nominate an RPM
Settings	A value or number
Show Clock	On / Off
Show Fan RPM	Shows all "Fan" monitors
Spacing	Distance between tines
Totals Reset	Yes or No Resets controller area totals(no recovery)
Tynes	Number of tynes (tines)
Volts	Vdc
Inputs	Diagnostic Test And verification
Width	Actual machine operating width
Yes	Yes
Zero	Zero's the count

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Notes

Please check your controller version number and Firmware revision number before contacting your Taege Dealer.

Model
RC300 ver 1.03, 2.01, 2.30 ,2.40, 2.50>>2.52d. On the "Version" screen.

RC350 & RC351 information on the "Settings" screen
RC350 ver 1.12, 1.30, 1.36, 1.38
RC351 ver 1.62 >>

This information also has the serial number. Sn# 2400 >>
Screen type EVE2, EVE3, EVE4.

Each of the Controller type has very specific information applying to the unit.

Additional Information is available on http://dealer.taege.com/faq/

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