# RC350 Controller

## Rev 01.12

**Manufactured by:**

                            :              **Dealer / Local Agent**

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# Contents

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# Introduction

Congratulations on purchasing a Taege RC350 Controller rev 01.12 Taege Engineering Ltd, a market leading agricultural company, which prides itself on developing market leading 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 it.  You can download additional copies of your owner's manual from dealer.taege.com.

Please quote your controller version when seeking advice or ordering parts.
E.g. RC350 rev 01.11

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.

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# Starting the Controller

**Plug in the RC350 Controller and make sure that the power supply to the machine is connected.**

Always connect all the cables to the machine.
When the RC 350 Controller is powered up it always starts in the "Stopped" mode.
At the top of the screen you will see "Front", a "clock" and ">" & "<" buttons. If you touch the ">" button the settings the "Back" hopper will show and if the "<" button the "Area Information" screen will show. If you press the ">" button several times the "Controls"(refer page 8) screen will show. On this screen you will be able to adjust the "Brightness" in percent and the "Run fall-back" time in (*sec) or press the "<" button to go back to a "Hopper" screen.
At the bottom of the screen, you will see the "Menu", "Prime", "Calibrate" and "GO" buttons.
In the centre of the screen the "kg/ha", "Select Crop" and "+" and "-" buttons are shown.
When you press the "kg/ha" button the "Weight Entry" screen shows and you enter the kilograms per hectare (target weight). If a wrong entry is made press the "Cancel" button but if it is correct press "OK".
The last weight entry shows above the "OK" button. (Was xxx.x kg/ha)

## 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 hoppers are fitted.

The "+" and "-" buttons increase or decrease the "kg/ha in both "GO" and "Stopped" mode.

The "Menu", "Prime" and "Calibrate" buttons at the lower part of the screen 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 calibrate screen for the selected hopper.
On this screen, you can select the "RPM" and the run time in "Seconds" for the hopper selected.
Please follow the on screen instructions (See "Calibration" 1, 2, 3, 4 & 5. or "Cancel").
When the calibration weight is entered the controller will revert to the **"Hopper"** screen in the **"Stopped"** mode.

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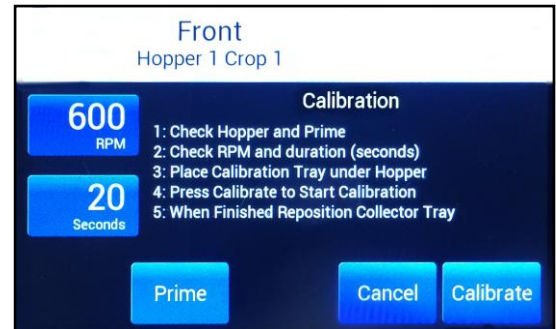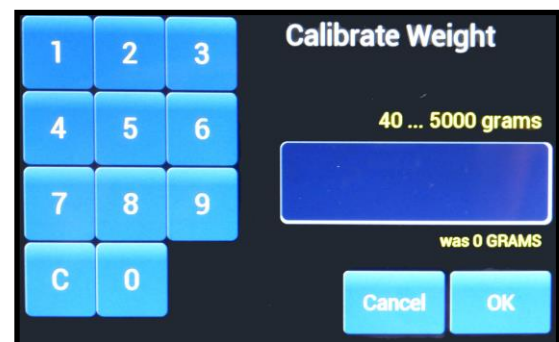
3. **Press the "Calibrate" button. You will see the seed collecting in the calibration tray and the sample bar on the controller counting down.**

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 the hopper is **"On"**
Press **"GO"**    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 "GO"

9. Move the wheel in the direction of travel until the "ha" on the controller records 0.010 ha and then stop the wheel.

10. Weigh the amount of product, this should equal about 100th of the target seeding weight "kg/ha".

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. Remember to turn the hoppers on again.

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# Operating the Controller

**"GO"**

When the green **"GO"** is selected the controller goes to the **"Area"** screen and the button changes immediately to a red **"STOP"** button. All screens in the **"GO"** mode have **"Running"** on the screen to alert the operator 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 **"km/h"** indicator.

(Air Seeder fan option if fitted the **"rpm"** monitor for the **"Fan rpm"**(turbine) shows in the top bar. The fan rpm monitor will change to red if slower or faster than the preset rpm and will give a warning sound and if pressed shows a larger **"Fan Status"** screen). Go to page 12

If a hopper is selected E.g., "Front" and the crop selected E.g., "Fertilizer" while the machine is operating and in the ground, a speed indicator will move across the screen to the left of the hopper select buttons "<" and ">" and the small speed dial.

The weight being applied can be altered while operating by selecting the correct hopper and pressing either the "+" or "-" buttons or by selecting the "kg/ha" button to make a major change. This change does not happen until the "OK" button is pressed.

The Indicator bars on the "GO" screen show the relevant "Pwr" usage for each hopper. The indicator bars are green when in their correct operating range, orange at 80% of available power and red when out of control with a warning sound

**WARNING**

**If a motor indicator shows "Red" "Wrong seeding will occur" the "Alarms" will sound and the alarms 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 fault. The alarms will then go to "Alarms OK"**

**"STOP" mode.**

When red **"STOP"** is pressed, the controller goes to the "Stopped" screen and the button changes immediately to a green "GO" button and stays in "Stopped" mode until the "GO" button is pressed again.

**Hopper On/Off button**

When the controller is turned on for the first time, all the hoppers are turned off, after calibration the controller remembers your settings and starts in the last know settings. If the crop is not calibrated the hopper 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 will 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. Press **"Save"** the name will be saved
9. Enter the target sowing weight (if you wish)
10. Complete by pressing **"Select"** and then calibrate.

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# Menu

**"Menu"** takes you to more screens that enable you to configure, diagnose and utilise the controllers other functions.
**For assistance with configuration, please contact your Taege Dealer.**



**"Empty"** goes to the "Run Hopper to Empty" screen i
This screen allows the operator to nominate the "rpm" and "seconds" for the **"Run Hopper to Empty"** time for the selected hopper. The "Off/On" button allows overall control of this function. When turned on the hopper will run for the nominated time unless turned off. The "<" and ">" buttons selects the hopper.



**"Ground Diagnostics"** goes to the **"Ground Input"** screen which enables the operator to verify or enter the **"Counts"/"Metres"** travelled. **Calibration Distance is 100 metres.**(see display) Measure accurately 100m and follow the on screen instructions.

1. Goto the Starting Point of Test Distance
2. Press **"Zero"**
3. Drive and stop at your measured distance.
4. If the metres travelled is not within 1m press **"Set"**, to save the new settings the screen will then go to **"Set Wheel Distance Count"** either press **"No"** or **"Yes"**.

If "No" then press "Back" twice to return to the **"Stopped"** screen.





**"Hopper Diagnostics"** allows the operator to verify speed **"RPM", "Pwr"** and **"Cnt"** for the hopper selected. Always disconnect the gearbox. 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. When you have completed this task engage the gearbox and press **"Back"**.

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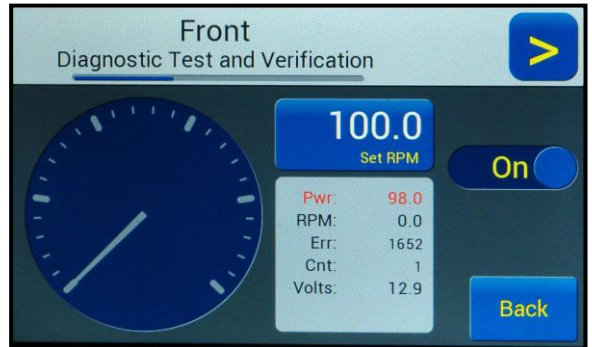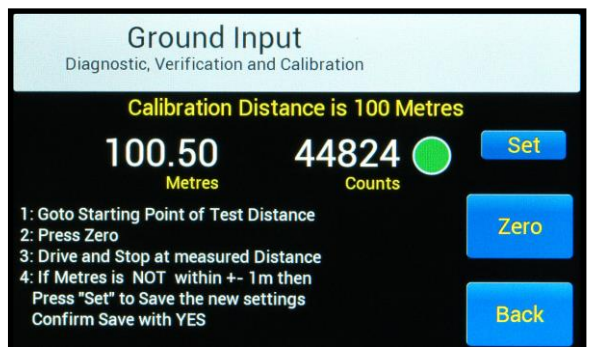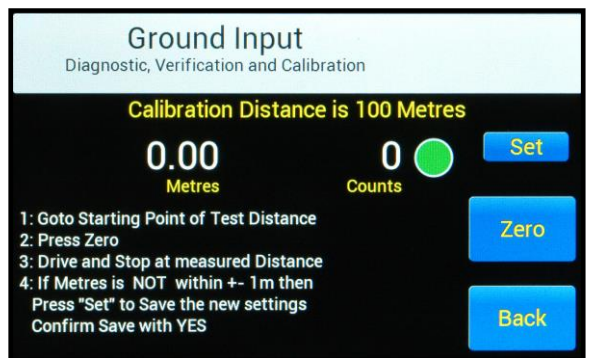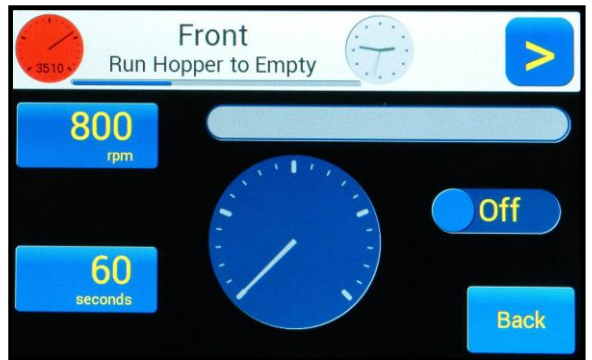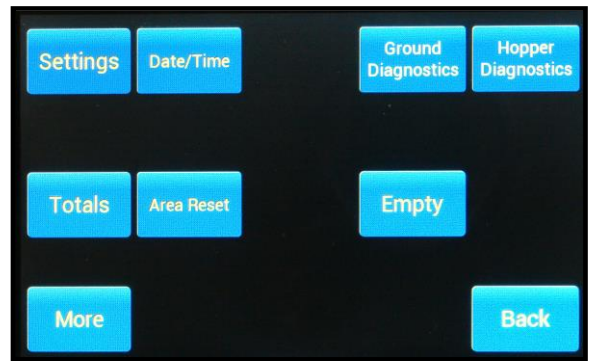
**Menu continued:-**

**"Settings"** shows the operator the actual settings for the machine. This is a display only screen. The left hand side of the screen shows the machine **"Configuration Settings"** and the machine **"Total"** and on the right hand side the calibration settings for the selected hopper. Press **">"** or **"<"** to select other hoppers and when you have completed this task, press **"Back"**.
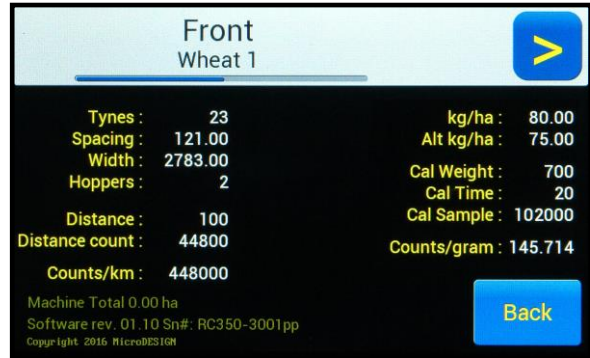
Press the **"Totals"** button and you will see this screen.
This shows the **"Select Crop To View"** screen. Select the hopper you wish to view by using **">"** or **"<"** buttons**.** This screen shows the hopper's current name, crop name, the accumulated area and the sowing rate in kg, for the active crop and the 6 other recorded crops for that hopper.
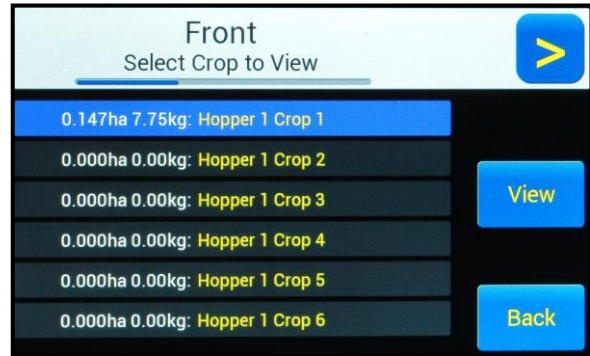
Press **"View".**
Shows the last 8 records **("ha - kg - date - Time")** recorded for that hopper, if there are more than 8, the oldest record will drop off the list.
The **"Save to Log" or "Zero Total"** Buttons now show.
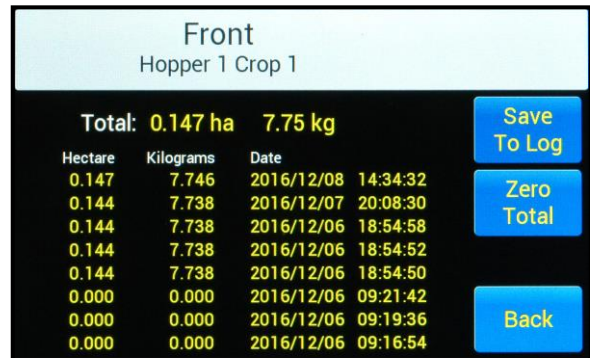
When **"Save to Log"** is selected and actioned, the crop totals will be saved to the log and the **" ha - kg - date"** will be recorded in the log and can be viewed on the **"View"** screen. This does not reset the totals.

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.

**"Date/Time"**
This screen allows the operator to adjust the clock to the current time zone for the country. The **"Set"** button sets the revised time and **"Back"** button goes back to the original settings.

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# More

In the **"Stopped"** mode **"More"** takes the operator to **"Controller Configuration".**

**"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.
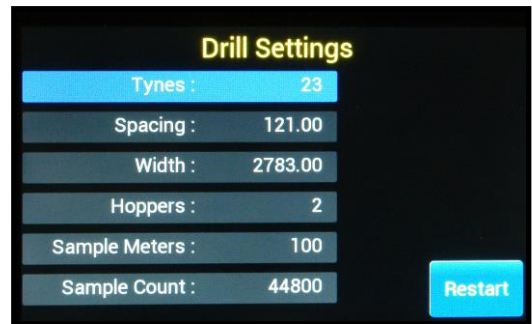
**"Inputs"** This is where the controller is configured to accept "High impedance", "PNP" and "NPN" type sensors.
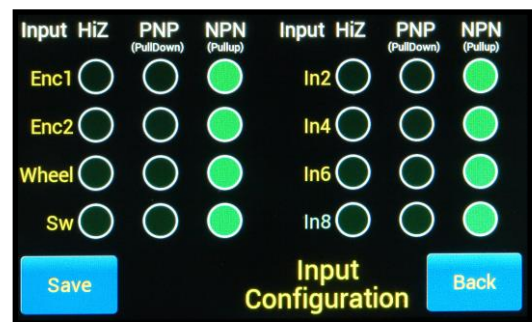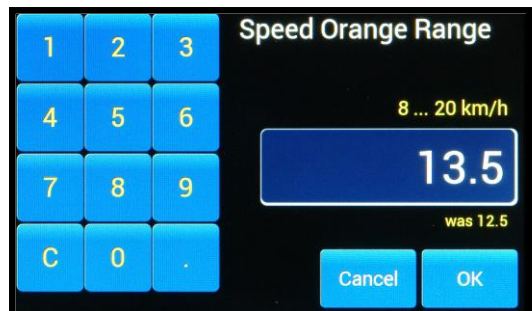
**"Speed"**
Speed/Power warning settings, can be changed on this screen.
The range settings set to standard settings and show green, then orange then red
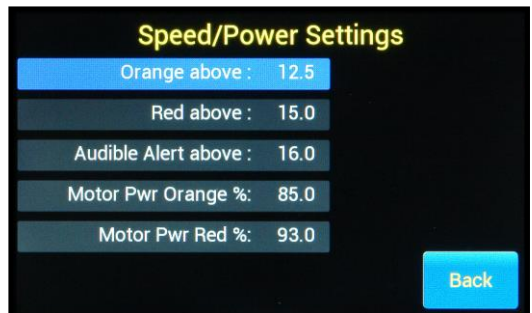
Select a highlighted colour setting and edit the speed settings (3) for the **"Km/h"** and percentage settings (2) for the **"Motor Power"**

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# Fan (Air Seeders)

**"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, when the fan rpm indicator is touched the **"Fan" "Status"** screen will show when holding the button.

**"Run Lockout"** locks out the **"Alarms Active"** controls for the fan rpm and can only be changed in the **"Stopped"** mode.

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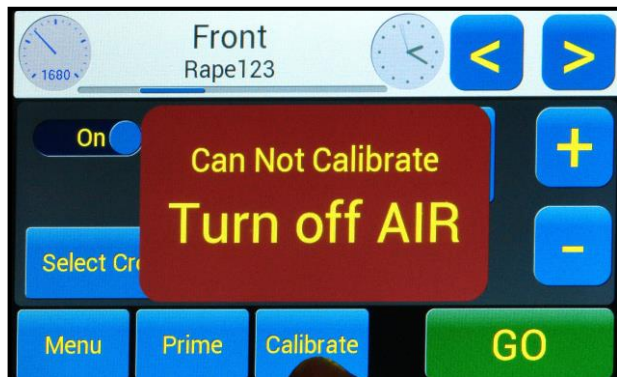


**If the "Fan" is not operating, the Air Seeder will not "Prime" or displays the following**

**"Can Not Run"**
**"AIR must be ON"**

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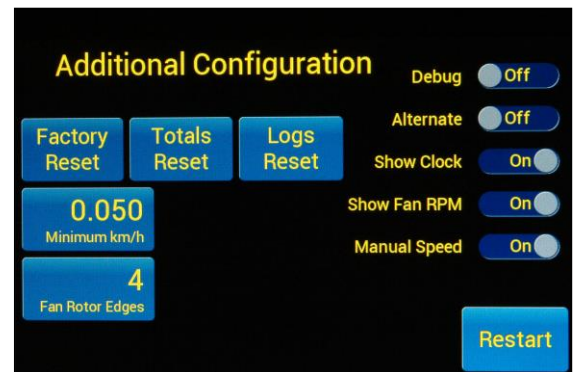
When **"Show Clock"** is selected, the clock will show on screen in the stopped mode.

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

**Manual Speed**
Go to page 16 for instructions

**Minimum km/h**
This setting is for minimum km/h at which the machine will operate.

**Fan Rotor Edges**
Normally set at 4.

.
**Factory Reset**
When the **"Factory Reset"** is selected and **"Yes"** is selected all settings and memory will be lost and are not 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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# Glossary

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

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# Warning Screens

### Kg/ha Warning
kg/ha has a restriction on the maximum weight at 500kg/ha and minimum of 0.1 kg/ha.

### Speed Warning
The machine will not operate under 0.010 kph and will warn when 15kph exceeded.

The controller warns if calibration weight or sample counts are outside recommended settings but will accept your figures although outside those recommended parameters.

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

### Fan Speed Warning
Fan low rpm and over rpm warnings if outside operator set parameters.

# Disclaimer

The information in these instruction sheets may or may not apply to your controller.

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 and on an Air Seeder, the motor/s connector plugs.**

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# Speed Override (Manual Speed)

"**Speed Override**" 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 Overrides**" press the "**Menu**" then "**More**" and hold the area at the top of the screen "**Controller Configuration**" for 3x seconds. The screen "**Additional Configuration**" will show.

Toggle **the "Manual Speed"** to the "**On**" position. Then press "**Restart**", the controller will add the additional changes to the operating system.

On the operating screen go to "**Manual Overrides**".
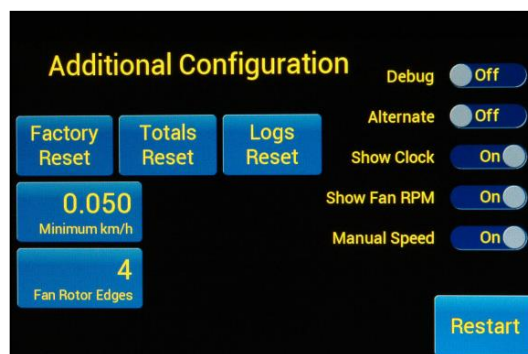




When this selection is operating, the controller offers 4x combinations.

1. If your machine has lost wheel signal only, then only turn the "**Speed Override**" "**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 "**Height Override**" "**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 to operate.

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# Notes

**Please check your controller version number**

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