



# HarvestMaster™

by Juniper Systems, Inc.

## Classic GrainGage Quick Reference Sheet

### FRS Main Menu

1. Collect
2. Maps
3. Setup
4. Diagnostics

### Collect

1. Spatial
2. Form
3. List
4. Navigation
5. Map Traits
6. Map Identifiers

### Maps

1. Add
2. Edit
3. Delete
4. View

### Setup

1. System
2. Traits Management
3. Database Tools
4. Hardware Setup

### Diagnostics

1. Load Cells
2. Moisture
3. Level Detect Sensor
4. Actuators
5. Version Information
6. Print Calibrations

### System

1. Manage Devices
2. Define Standard Units
3. Define Backup Location
4. Label Printer
5. Preferences
6. About

### Traits Management

1. Master Traits List
2. Trait Template

### Database Tools

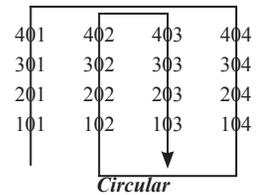
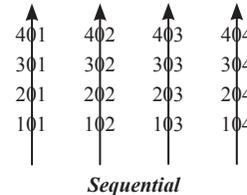
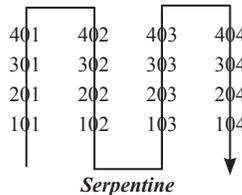
1. Export data to CSV
2. Import data from CSV

### Hardware Setup

1. Weight Calibration
  - a. Edit Weight Calibration
  - b. Slope and Motion
2. Moisture Sensor
  - a. Moisture Curve
3. Chamber Volume
4. Level Sensor
5. Timers
6. Actuators
7. Setup File
8. GPS Setup

### Harvest Setup

1. Select desired *Activity* – *Harvest Plot* or *Harvest Strip*.
2. Select desired *Field Map*.
3. Select desired harvest *Trait Template*.
4. Select *Collect*.
5. Select desired *Moisture Curve*.
6. Select *Form* or *Nav*.
7. Select Navigation Type – *Serpentine*, *Sequential*, *Circular*, or *Random*.
8. Select the *Left Range* and *Left Row* (starting plot).



9. Select the primary and secondary *Direction of Travel*.
10. Select *Save*.
11. Select *Form*.
12. Start harvesting.

### Classic GrainGage Calibrating Guide

#### Load Cells—Calibration

1. Select *Setup>System>Define Standards Units*. Select English or Metric and number of decimal places.
2. Select *Setup>Hardware Setup>Classic GrainGage Setup>Edit Weight Calibration*  
**Slope and Motion Sensor needs to be turned OFF during calibration.**
3. Record *Weight Calibration Coefficient* value.
4. In diagnostics from the main screen, select *Load Cell* and *Tare* weight.
5. Place known weight on weigh pan and verify weight reading being displayed.
6. Adjust the weight calibration using the following equation:  
$$\text{New Weight Cal Coefficient} = \text{Actual Weight} / \text{Measured Weight} * \text{Current Coefficient}$$
7. Replace the current Weight Calibration Coefficient with the calculated value. Press *Save* (F4).

## Test Weight Chamber Volume



1. Select *Setup (F3)>Hardware Setup>Classic GrainGage Setup>Chamber Volume*.
2. Default values for the chamber volume are as follows.

Chamber Size	Cubic Inches	Cubic cm.
3.5 liter	209	3441
1.5 liter	89	1458
¾ liter	40	655

3. Cycle a grain sample, with a known test weight, through the GrainGage.
4. Grain sample needs to be large enough for at least three full cycles. (15-18 lb. for a three liter chamber, 8-9 lb. with a 1.5 liter, & 5 lb. with a ¾ liter.)
5. Run the sample through the GrainGage in harvest mode three to five times and average the readings.
6. Calculate the new test weight chamber by using the following the formula:

$$\text{New Chamber Volume} = \text{Measured Test Weight} / \text{Actual Test Weight} * \text{Chamber Volume}$$

7. Enter the new Chamber Volume value and press *Save (F4)*.

## Level Detect Settings

1. Select *Setup (F3)>Hardware Setup>Classic GrainGage Setup>Level Detect*.
2. The Open and Close levels are settings that determine the amount of grain in the hopper needed to trigger the GrainGage to cycle. The higher the level setting the more grain required to start the cycle sequence. Open and Close Level should never be set lower than 5.0.

HM 800 Default Settings	Open Level – 10.0	Close Level – 10.0	Hopper Delay – 3.0
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## Timer Settings

1. Select *Setup (F3)>Hardware Setup>Classic GrainGage Setup>Timers*.
  - Open State Time—Value indicates how long each gate will remain open allowing grain to flow through.
  - Clear Delay—When the level of the grain is no longer high enough to trigger the Open Level and Close Level settings, the Clear Delay starts. When the Clear Delay timer expires the system can process a end-of-cycle sequence. The Clear Delay starts after pressing ENTER to save the data.
  - Weigh Time—The amount of time data is collected and averaged to determine the actual weight reading.

HM 800 Default Settings	Open State Timer – 0.6	Clear Delay Timer – 1.0	Weight Time – 0.8
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## Classic GrainGage Maintenance Checklist

Item	Process
Start System	First, start the combine. Next, turn on HarvestMaster System Console (Handheld should turn on automatically). Finally, load FRS.
Air Pressure	Air pressure should be set 60 –80 psi.
Air Leaks	If you have a reservoir air tank, turn off the combine after filling the tank. Check for air leaks on all cylinders and solenoids. Also check solenoid exhaust port plugs for any build-up of oil or debris. If they are caked in debris, take the exhaust port out and clean with Brake & Parts Cleaner.
Cable Connections	Ensure all cable connections are tight and there is not any debris in the connections. Be careful when reconnecting the cables not to bend or damage any connector pins.
Debris	Blow out the GrainGage at the end of every day. DO NOT use a high-pressure washer to clean system.
Bucket Clearance	The plot bucket should be sitting firmly on the load cell tracks. Check to ensure that all cables and air hoses are not touching the bucket. Also, check the clearance around the bucket.
Actuators Cycle Smoothly	Make sure all cylinders open and close smoothly.
Weight System	Place a known weight (not exceeding 5lb./2.27 kg) onto the weigh pan. Verify that the system reads the same weight. Remove weight and verify the system zeros out.
Calibrate Weight System	Procedure is in the Manual (CGG pg. 21)
Calibrate TW Chamber Vol.	Procedure is in the Manual (CGG pg. 39)
Calibrate Slope and Motion	Procedure is in the manual (CGG pg. 22)
Calibrate Moisture Curve	Procedure is in the manual (CGG pg. 29)