

GrainSense

Hectolitre Weight Tool User Manual



GrainSense

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Information

The information included in this manual corresponds to our current state of knowledge and is no claim for completeness.

This manual is only intended for the **GrainSense Hectolitre Weight Tool**.
Before using together with the GrainSense analyzer, the operator must carefully read the detailed instructions for the safe and correct usage of the GrainSense analyzer and hectolitre weight tool.

Table of Contents

1.	Package contents.....	4
2.	Hectolitre Weight Tool – Accessories Overview.....	5
3.	Hectolitre Weight Tool Usage	7
	Setting up the equipment	7
	Correct Filling of the Sample Container	8
	Application Usage Instructions	10
4.	Maintenance and Service	13
	Basic Maintenance	13
	Power Cord	13
	Customer Return Instruction Sheet	14

1. Package contents



No	Item
1	Precision Scale
2	Hectolitre Beaker
3	AC/DC Power Supply Adapter
4	USB-A (Male) – USB-A (Male) Cable

2. Hectolitre Weight Tool – Accessories

Overview

The hectolitre weight tool is delivered with all essential accessories required for accurate, repeatable measurement of grain bulk density. This chapter introduces each included item and its purpose in the measurement workflow.

Included Accessories

1) Precision Scale

A high-accuracy digital precision scale used to determine the mass of the grain sample after the beaker is filled and leveled.

- Ensures repeatability and adherence to HLW methodology
- Calibrated for laboratory and field use

2) Hectolitre Beaker

GrainSense provided volume beaker.

- Used as the default volumetric reference for density calculation
- Designed to minimize filling variation and to support consistent levelling/scraping

3) AC/DC Power Supply Adapter

A mains-powered adapter for operating the scale or other components of the HLW measurement setup.

- Provides stable and clean DC output
- Ensures measurement accuracy and device reliability

4) USB-A (Male) – USB-A (Male) Cable

Used for data transfer or configuration as required by the scale and PC running GrainSense LAB application.

3. Hectolitre Weight Tool Usage

Setting up the equipment

Start the Lab application on your PC and log in using your credentials.

Ensure that the sensor unit is powered on: the power switch on the cord should be in the "on" position, and the sensor cable must be properly connected.

When the sensor is powered and in standby mode, the LED light at the bottom of the sensor will glow yellow.

The LED turns green when the sensor is active, such as during measurements or when interacting with the Lab application.

Turn on weight scale and follow the instructions in the application, telling you to first tare the scale with your empty hectolitre container.

Upon starting a measurement, the Lab application requests you to weigh your sample before proceeding.

The hectolitre weight of a sample will be displayed in the history tab of the application along with other information.

Correct Filling of the Sample Container

For accurate hectolitre (test weight) calculations, the grain sample must be placed into the container in a consistent and controlled manner. Improper filling can lead to compacted kernels, air gaps, or uneven surfaces, all of which affect the calculated volume.

Follow these guidelines when filling the container:

1. Fill the container naturally

Pour the grain into the container so that it fills freely and naturally. Allow the kernels to fall into place without shaking, tapping, or compressing the container.

2. Do not press or compact the sample

The grain must not be pushed down, packed, compressed, tamped, or otherwise forced to settle. Compaction will artificially increase the density and result in an incorrect test weight value.

3. Ensure the container is completely full

Add enough grain so that it slightly overfills the top edge of the container.

4. Level the surface carefully

Using a flat edge (e.g., a straight ruler or similar tool), gently sweep across the top of the container to remove the excess grain and create a flat, even surface.

- Do not apply downward pressure.
- Do not shake or tap the container during levelling.

5. Proceed immediately to weighing

Once the surface is levelled and the sample is stable, place the container on the tared scale and allow the GS Lab application to record the weight and calculate the volume.



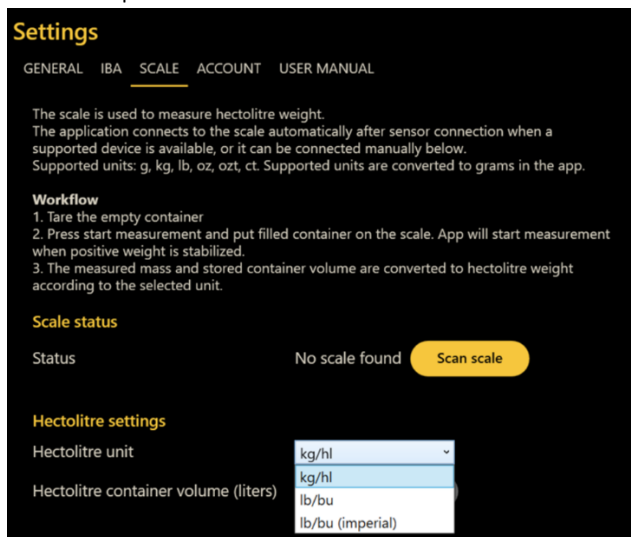
These steps help ensure that the sample volume measurement is repeatable and consistent with industry test weight practices.

Application Usage Instructions

The GS Lab scale functionality enables the automatic tracking of sample volume in hectolitres during a measurement session. To ensure correct operation, verify that the measurement units configured in the application settings (metric or imperial) match the unit settings of the connected scale.

If the scale has been connected correctly, the application will normally detect and activate it automatically. If the connection does not establish for any reason, you can manually trigger the connection by opening the settings and selecting “**Scan scale**”.

When connecting the scale, ensure that you use a **USB-C port capable of data transfer**. Some laptops include USB-C ports intended only for charging, which prevents the scale from being detected. If your device has limited data-capable ports, this can be resolved by using a USB dock or hub that provides at least one USB-C data port.



In this example, the sample volume has already been transferred from the scale to the GS Lab application **before any grain begins to flow through the sensor**.

Before starting the measurement in the application, ensure that you tare the scale with the **empty sample container placed on it**. The GS Lab application will prompt you to perform this step. Taring ensures that only the weight of the grain sample is included in the volume calculation.

Barley

Grain type ▾

Fill measurement details

Sample ID	Test weight (kg/hl)	Notes
Scale connected		
Status	0.0 g	
Cup volume	0.5 l	
Hectolitre unit	kg/hl	

Before starting the measurement, tare the empty container mass.

Barley

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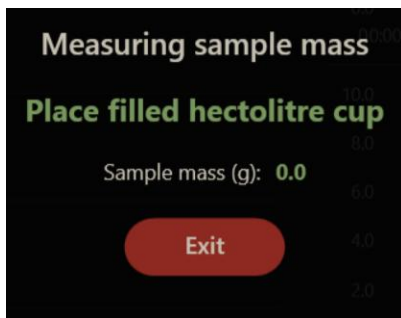
Grain type ▾

Sample ID	Test weight (kg/hl)	Notes				
	%	MEAN	MIN	MAX	STD	
☐ Protein Dry						
☒ Moisture Wet						
☐ Starch Dry						

Calibration version: BRL_25_1

After the measurement session has been started, the GS Lab application waits for you to **place the grain sample into the pre-tared container**. Once the sample is placed on the scale, the system calculates the sample volume automatically.

Ensure that the **weight unit settings** in the application match the units used by your scale. If the units do not match, the application will display an error, and the volume cannot be calculated correctly.



In the **Measurement History** section of the GS Lab application, you can review all previously recorded measurement results. The **“Test weight”** column displays the calculated sample volume expressed in hectolitres. This value is shown in hectolitres **regardless of which unit system you selected during measurement** (kg/hl, lb/bu, or lb/bu (imperial)).

Export selected to file

Export selected to cloud

New measurement

Sample ID	Protein	Moisture	Starch	Oil	Test weight	Notes
	14.6	6.5	83.4	-	57.5	 View 

4. Maintenance and Service

Basic Maintenance

To ensure continued performance and safety of the device:

- Keep the device clean and free from dust.
- Use a dry or slightly damp lint-free cloth for cleaning.
- Do not use solvents, sprays, or abrasive materials.

Power Cord

The device includes a certified AC/DC power supply. Do not replace the mains supply cord with any other AC/DC power supply.

Customer Return Instruction Sheet

Dear Customer,

Thank you for using GrainSense Hectolitre Weight Tool. When your electrical device reaches end-of-life, please follow these steps:

1. Do not dispose of the device in household waste.

This product is subject to WEEE regulations.

2. Return the device to GrainSense Oy for recycling at no cost to you.

Pack the device securely.

Include any accessories originally supplied.

3. Ship to:

Grainsense Oy
Tutkijantie 9
FIN-90590 Oulu
FINLAND

4. Shipping Costs:

We cover all shipping costs.

Please contact us at sales@grainsense.com /
+358 44 970 6079 for a prepaid shipping label.

5. Why return?

Recycling helps recover valuable materials and prevents environmental harm.

Thank you for supporting sustainable practices.

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For technical support, please contact: support@grainsense.com

www.grainsense.com