

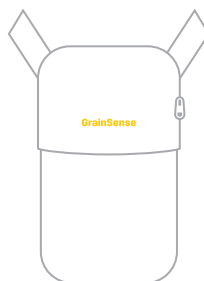
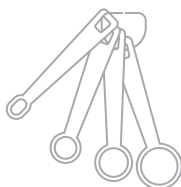
Product Sheet

GrainSense Handheld Analyzer

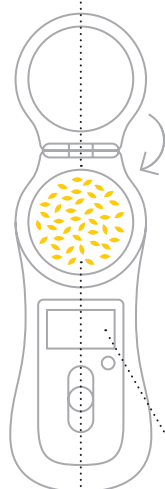
Product code: GS-ANLZR-A-2

The handheld GrainSense Analyzer measures the quality of cereal grains and other crops in seconds: **protein, moisture, carbohydrates, and oil contents***

* Percentages are calculated on a dry, wet or fixed basis, based on country guidelines.



Sampling tray

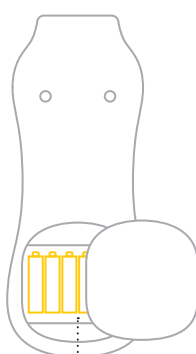


Kernels

Integrated sphere



LCD display



AA batteries

The technical principle is **Near-infrared (NIR) spectroscopy** in the so-called third overtone wavelength range. This technique has been used in laboratory instruments for years. GrainSense is the first to realize such an instrument in a handheld format.

Because of the **patented sampling technology** (grain inside an “integrating sphere”) the light intensity arriving at the detector is several hundred times higher than otherwise possible. This enables the building of a **small, battery-operated Analyzer, certified for the use of rechargeable AA batteries.**





Technical specifications

Size	Hand-held (footprint 270 mm x 115 mm)
Weight	820 grams (without batteries)
Batteries	6 x AA batteries labeled with "for industrial use" / rechargeable batteries
Battery operation	50 to 150 measurements depending on battery quality and type of use
Measurement principle	Near infrared transmittance spectroscopy
Sample size	≈ 3 grams, depending on the size of kernels
Measurement time	About 30 seconds, including the Analyzer warm-up and the user loading the sample
Species (whole kernels)	Wheat, barley, oats, rye, rapeseed, sunflower seeds. Maize and soybean. Glassless tray is a necessary accessory for bigger kernels.
Operational conditions	+5 to +45 C 20 to 90 % RH (non condensing)
Storage temperature	-10 to +60 C
Protection	Designed for outdoor use - except raindrops on the sample tray will affect the moisture result
Bluetooth	LE 5.0
Language	Latin and non-Latin alphabets supported, symbols
Mobile application	Android/iOS

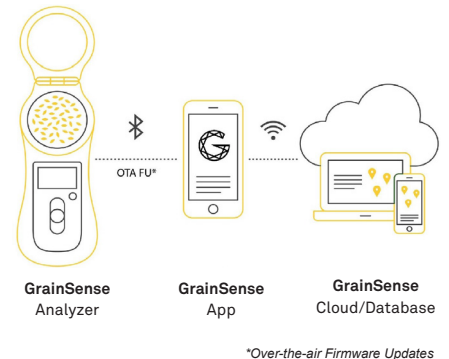
Customer support: support@grainsense.com



GrainSense 360° light penetration method (integrating sphere)

- + Short measurement time
- + Enables small samples
- + Works with simpler and more affordable technology
- + Analyzer size can be small
- + Wider use than grain as other types of samples possible

The key components of the GrainSense solution are the GrainSense Analyzer, mobile application, and cloud-based database:



1. The GrainSense Analyzer measures the grain quality from a few kernels for any calibrated species. The protein, moisture, carbohydrates and oil contents are measured in a few seconds. The GrainSense Analyzer interacts with the GrainSense Mobile Application via Bluetooth and for Over-the-Air Firmware Updates (OTA FU).

2. The GrainSense App connects with the cloud to upload calibrations and other settings to the GrainSense Analyzer and sends measurements results from the Analyzer to the cloud-based database.

3. The GrainSense cloud-based database and API store the measurement results and provide updated calibrations/settings to the GrainSense Analyzer (via Mobile application). The cloud services include access to the **GrainSense App** and the **GrainSense Dashboard**.

