

Literal
by **hiphen**

Hardware Technical Specs



System Overview

The lightweight and portable plant phenotyping system is designed to capture photographs and metadata necessary for analysis. The system consists of hardware and software components that enable efficient use.



The Sensors

2 RGB Cameras (NADIR position)

Resolution: min. 3100 x 3100 pixels
Format: RAW, 12 bits/pixel
GSD at 1.8m high:
0.36 mm/pixel
Photo frame: 1.1m x 1.1m

1 NIR Camera (NADIR position)

Resolution: min. 3100 x 3100 pixels
Wavelength range: 715-900nm

1 RGB Additional Camera (Adjustable)

Resolution: min. 3840 x 2160 pixels (4K)



All 4 cameras must be fully synchronized

Integrated GPS: compatible with GPS, Galileo, Glonass, BeiDou

TRAITS

- 📏 Plant height
- 🌿 Green cover
- 🌱 NDVI
(Normalized Difference Vegetation Index)
- 🌾 Number of wheat ears
- 🍃 Leaf Area Index

The Rod

Material
Aluminum

Measurement range
min. 780mm
max. 2500mm

Adjustment
3-clamps manual system



The Tablet & Software

Screen Size

10.1 inches HD TFT LCD
Resolution: min. 1920 x 1200 pixels
Battery life: min. 4 hours

Software Features

Select nb of images per plot
Real-time image feedback
Device position on Pitch & Roll axis



2-years data processing included + Analytics

Plot feedback

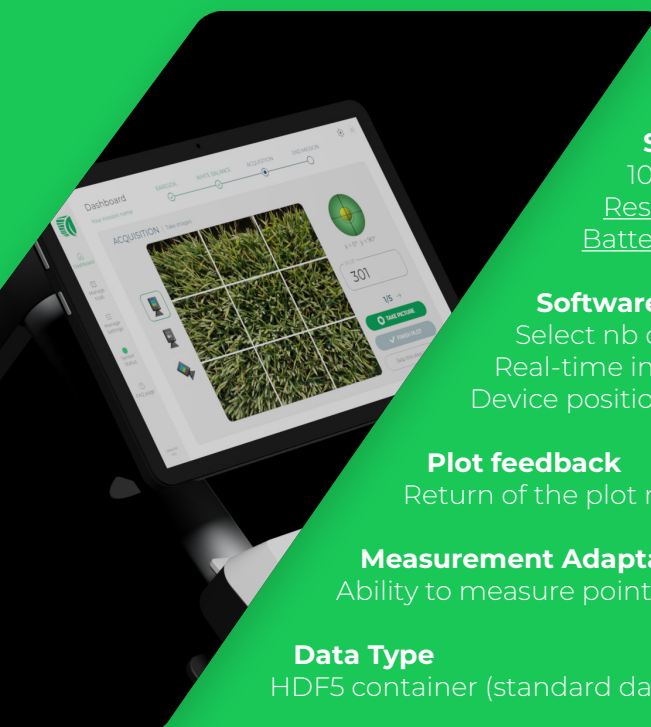
Return of the plot map as an indicator of successful phenotyping of the plot

Measurement Adaptability

Ability to measure points of interest not previously defined

Data Type

HDF5 container (standard data format)



Data Management

At the end of a measurement series, all related data will be stored in a single **HDF5 container** (standard data format), which will include:

- References to the plot of interest (e.g., plot number, test platform references) or selected points of interest
- An **HDF5** file created when selecting a microplot and closed upon leaving the plot. The file contains all data collected during the measurement period
- Information related to the sensor used (model, serial number)
- Images from different sensors
- Additional data associated with the images (e.g., GPS position, timestamp)



Literal Components Diagram



Inside the Box



Tablet

Compartment

- *Your tablet ready to be used*

Accessories

Compartment

- *Chargers*
- *Harness*
- *Calibration panel*
- *USB stick*
- *Belt clip*
- *Allen key set*

Device

Compartment

- *Your Literal ready to be used*

Right-hand Side

TriCam LED

Indicates power status

Wing Screw

To adjust TriCam's orientation

Velcro Strap

For optimal cable management

Auxiliary Camera

- **Locking hinge**

To lock camera height on the pole

- **Adjustment screw**

To lock camera height on the pole

Cable Wrap Support

For optimal cable management

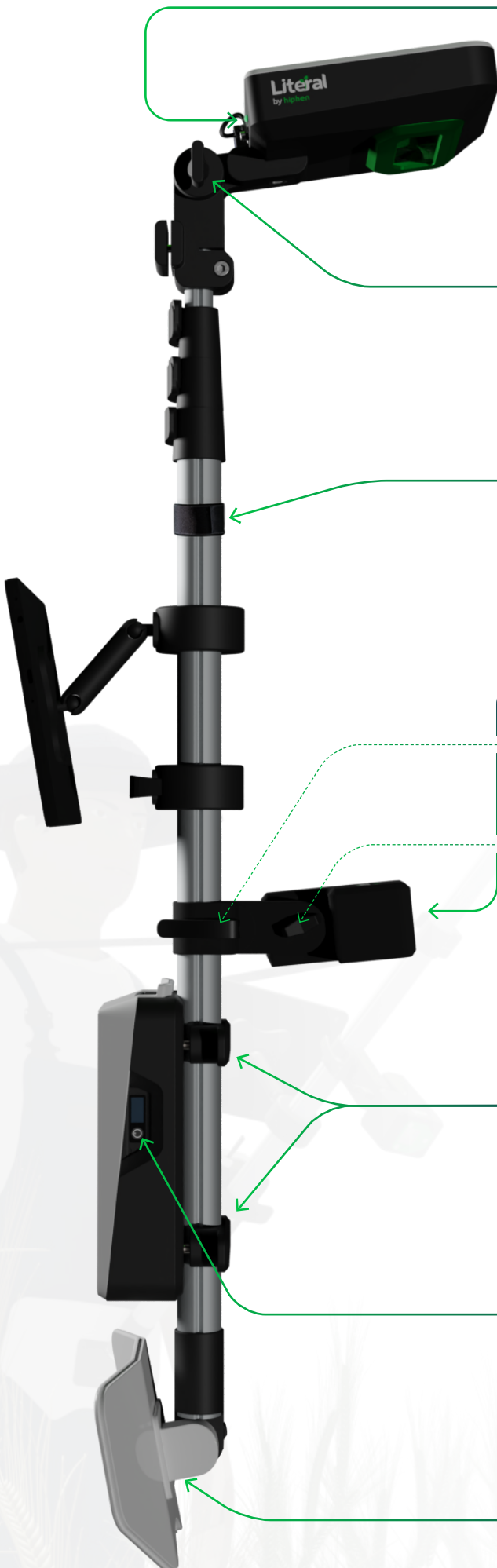
Lithium Battery

On/Off button

Display of battery percentage

Support Belt

Provide additional stability and comfort



Left-hand Side

TriCam Sensor Head

- 2 RGB cameras
- 1 NIR camera
- GPS + Connectivity



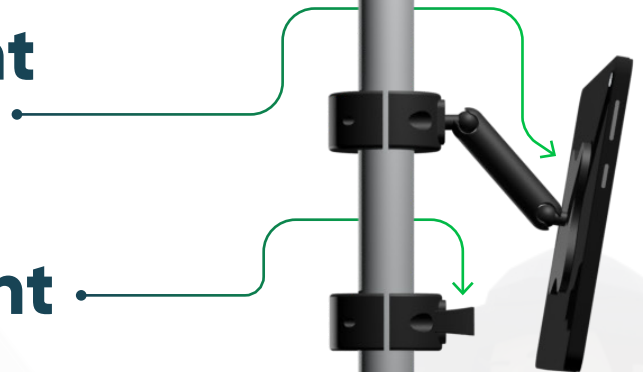
Clamping Hinges

Allow for height extension



Tablet Magnetic Mount

Ensure secured lock down of the tablet



Harness Hooking Mount



Auxiliary Camera

- **Bubble level**
To adjust precisely the camera
- **Power cable exit**
Connecting to the sensor head



Battery Housing



Adjustment Screw

To finetune system position





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