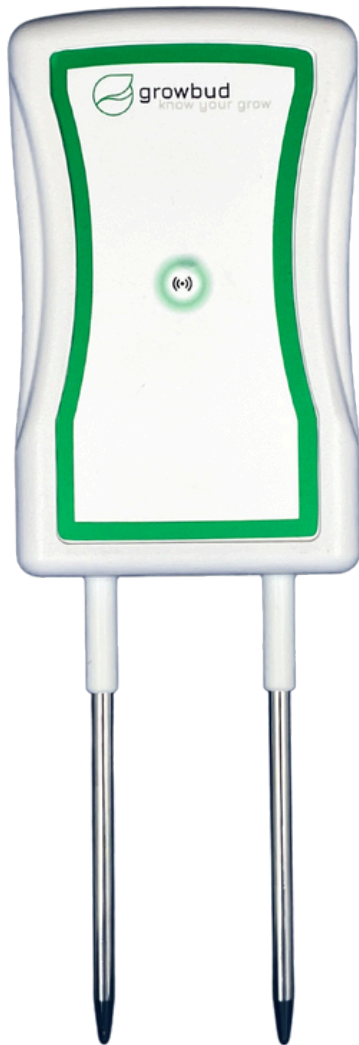# Vero Sensor
User Manual

What's Inside

Installation & Setup
Maintenance
Specifications
Warranty & Support

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Installation & Setup

1. Unboxing
 • What's Included: Vero sensor with a 9V battery
 • Check for Damage: Inspect everything for any transit-related issues.

2. Battery Installation
 • Insert the Battery: Remove the back cover and install the 9V battery.
 • Power On: The green circle in the center of the sensor is the button. The LED will blink blue if the device is powered.

3. App Download & Setup
 • Grab the Growbud iOS or Android app: Search "growbud" in the App Store.
 • Create an Account: An account is required to save your sensor data.
 • Pair the Sensor: Follow the instructions in the app to pair the sensor. Touch the button (no pressure required) without gloves on to put the sensor in pairing mode.

Download the Growbud iOS or Android app from the App or Play Store. Access the web app in any web browser using this URL: **www.growbud.app**

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Installation & Setup

4. Sensor Location

Location: For optimal results, position the sensor needles near the wettest part of the container or block. The plant will continue taking up water and nutrients in the wettest portion of the container if the rest has dried out, so measuring here is a good way to see what your plant is taking up. Whichever position you choose, maintain consistent placement for accurate trend monitoring.

5**. Sensor Insertion**
Press the sensor into the grow medium. Ensure the entire active region of the sensor is within the grow medium, and also press in the portion of the needles covered in plastic to ignore conditions at the edge of the container. For the Vero sensor this is the exposed 3.5" of the sensing needles. If installing from the side of the container ensure the sensor is not loose after installation.

6**. Spot Check**
Use the spot check feature in the mobile app to get an instant sensor reading. It is not necessary to press the button to connect with spot check, the button press is only needed for the one time pairing. For the most accurate readings it is best to leave the sensor installed and allow for one significant irrigation event to be sure the sensor is fully settled.

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Maintenance

Regular Cleaning
 • Frequency: We recommend cleaning the sensor prongs at least every 3 months to ensure accurate readings.
 • Method: Dampen a soft cloth or cotton swab with isopropyl alcohol (70% or higher) and gently wipe away any soil or residue.
 • Safety Note: Make sure the sensor is powered off and the battery removed before cleaning to avoid damage.
 • Strong chemical cleaners: Bleach and other high strength cleaners may degrade sensor housing and ceramic coating. If you choose to use them, do so at your own risk. dilute thoroughly, and rinse any residue completely. Damage from strong cleaners may not be covered under warranty.

Battery Replacement
 • Schedule: Replace the battery every 3 months or sooner if you see a low battery alert in the app.
 • Procedure: Open the battery compartment, remove the old battery, and insert a fresh one—ensuring correct polarity.
 • Pro Tip: Keep an extra battery on hand for uninterrupted sensor operation. Rechargeable Li-ion 9V batteries work great to re-use after each harvest.
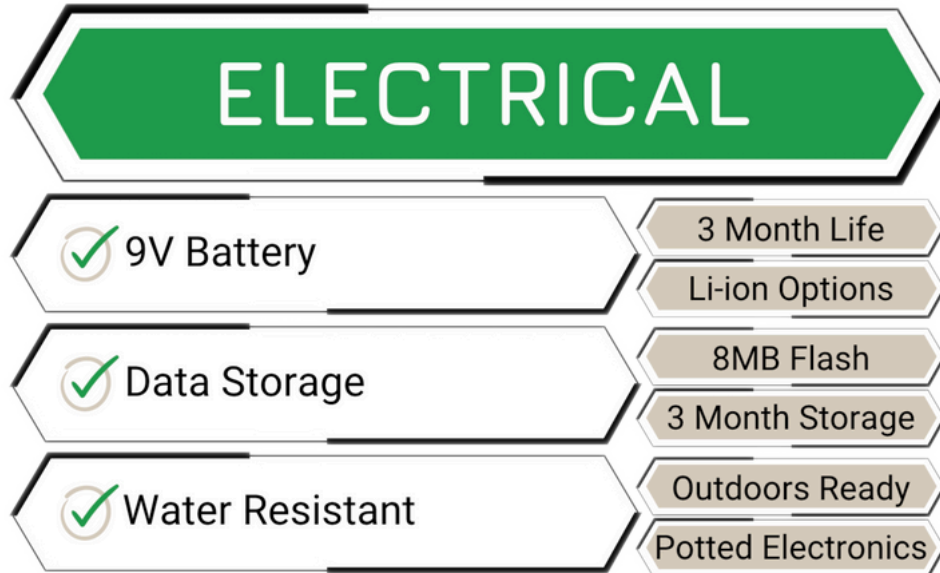
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Electrical Specification

Battery

Use 9V batteries to power the Vero sensor. The battery life is 3 months. One alkaline 9V battery is included with the purchase of the sensor. Li-ion batteries in 9V packaging are great to use and simply need to be recharged after each harvest.

Data Storage

The sensor uses flash memory to persistently save data. You can retrieve the data with a Bluetooth sync in the app. The Dro sensor has 8 megabytes of flash memory which allows for 3 months of historical data storage.

Water Resistance

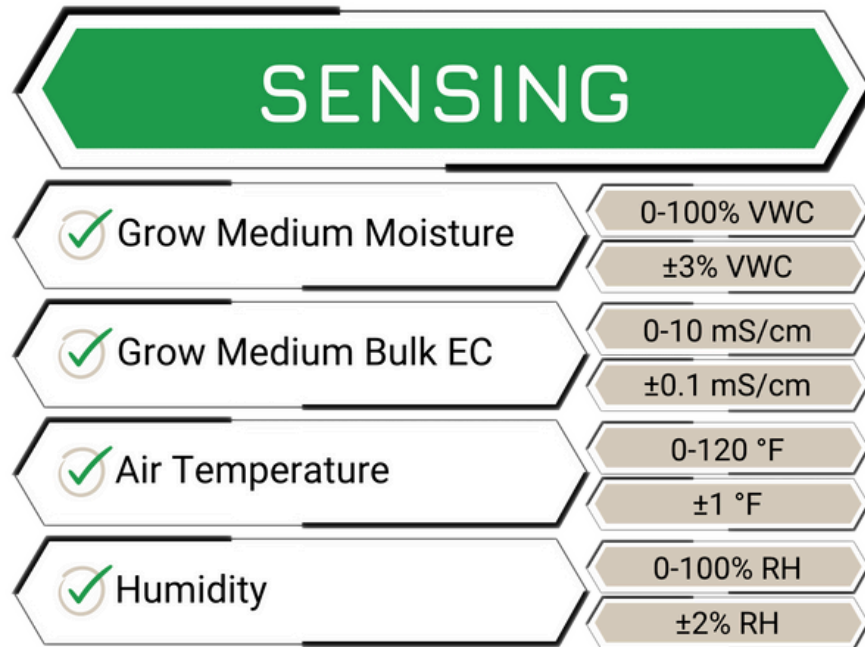The Vero sensor has potted electronics that are outdoors ready.

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Sensing Specification

SENSING

✓ Grow Medium Moisture	0-100% VWC
	±3% VWC
✓ Grow Medium Bulk EC	0-10 mS/cm
	±0.1 mS/cm
✓ Air Temperature	0-120 °F
	±1 °F
✓ Humidity	0-100% RH
	±2% RH

Grow Medium / Substrate Sensing

The Vero sensor uses state of the art, high frequency sensing to accurately measure the volumetric water content (VWC), pore water electrical conductivity (pwEC), and temperature of soil and hydroponic substrates. The sensor is tailored for high EC conditions which in ground soil sensors often do not account for. Substrate profiles can be selected in the app so that the VWC and pwEC can be accurately calculated based on the properties of each substrate.

Air sensing

A waterproof air sensor measures the air temperature and humidity and the app calculates the vapor pressure deficit based on these values.
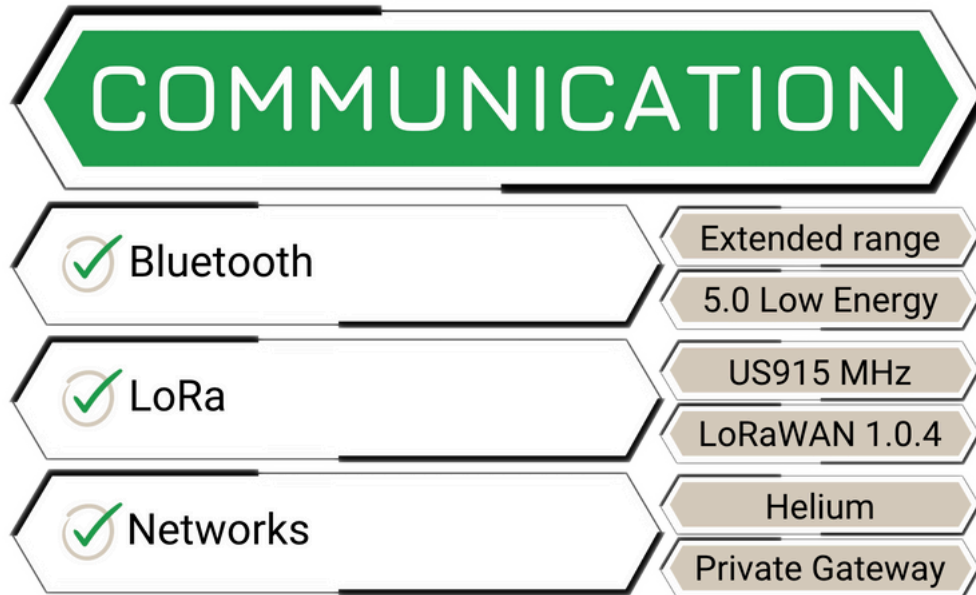
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Communication Specification

Bluetooth® 5.0 Low Energy
 • Provides quick, direct pairing to smartphones or tablets.
 • Ideal for nearby monitoring, setup, and real-time data reads.
 • Up to 300 feet (100 m) range.

LoRa® / LoRaWAN®
 • Operates at US915 or AS923 MHz for long-range connectivity.
 • Use Vero with a Growbud gateway for automatic data syncing.
 • Up to 2 mile (3 km) range from sensor to gateway.
 • Each gateway can support at least 100 sensors and multiple gateways can be used in concert to cover larger regions.

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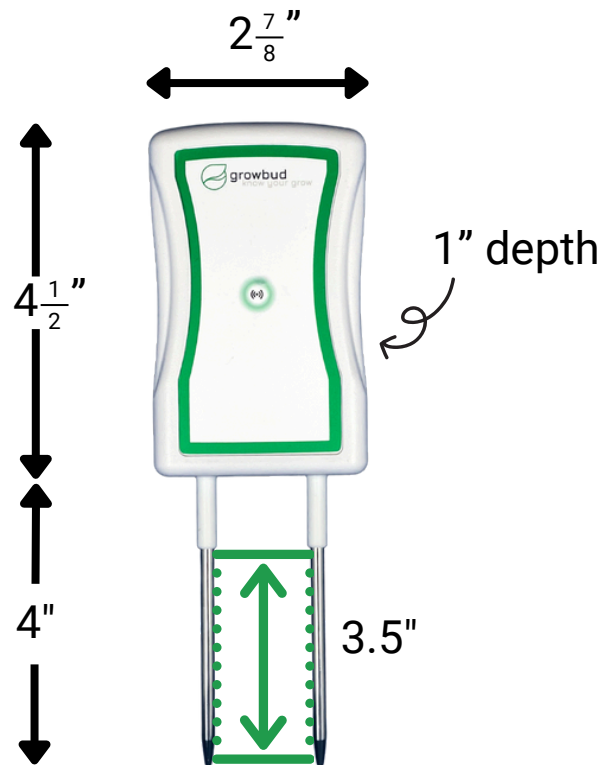✉ support@growbud.io

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Mechanical Specification

Housing
• Constructed with robust ABS plastic for durability, impact resistance, and protection against dust and moisture.
• Engineered to withstand the challenging conditions of grow room environments.

Probes
• Features 3/16" stainless steel needles designed for precision and long-lasting performance.

$2\frac{7}{8}$"

1" depth

$4\frac{1}{2}$"

4"

3.5"

Active Sensing Region
The exposed stainless steel needles are the active region of the sensor. Make sure to install fully into the grow medium.

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Warranty & Support

Warranty Coverage
 • The Vero Sensor comes with a 1-year limited warranty from the date of purchase. This warranty covers manufacturing defects and component failures under normal operating conditions.
 • Note: Misuse, unauthorized repairs, or damages (including those from improper cleaning with harsh chemicals) may void the warranty.

90-Day Return Policy
 • If you're not completely satisfied, our 90-day return policy allows you to return the product in its original condition.

Getting Help
 • For troubleshooting, warranty claims, or general support, please contact our dedicated team:
 • Email: support@growbud.io
 • Website: www.growbud.io
 • Our support team is available Monday through Friday from 9 AM to 5 PM. Please include your purchase details and a clear description of your issue when you reach out.

Thank you for choosing Growbud —your reliable partner in optimizing your cultivation environment. We're here to ensure you get the most out of your sensor every step of the way.

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