USER GUIDE - iNSTALLATION

HYDROBALL®

Models: HB01L - LoRaWAN / HB01N - NB IoT

DENODL®

TECH FOR EASIER LIFE

Installation and Use of the Probe

Before installing your HYDROBALL®, you must download the DENODL® App from the App Store or Google Play and follow these initial steps:

Create an account or log in using the credentials provided to you.

Create the Digital Twin of the area to be monitored. If this is your first installation, consult the full user guide for the DENODL® App at: https://welcome.denodl.com/es/ You will need to create the corresponding elements that will allow you to locate the probe.

Once these steps are completed, proceed with the physical installation of the probe:

1. Selecting the Control Point

Choose the location based on the monitoring objectives. The probe must be installed at the depth where the crop's root volume is most concentrated. If in doubt, refer to the specific installation guide at: https://welcome.denodl.com/es/

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2. Powering On

Unscrew the top cap.

Open the battery compartment and insert four 1.5V AA batteries, properly oriented.

Close the compartment. Once contact is made, the LED will begin to flash. If no light is observed, check the battery placement.

Warning: On first startup of the probe (NB-IoT model), the initial connection to the operator’s network may take several minutes. It is recommended to power on the probe and leave it idle for a few minutes before installation.

The network registration process may take up to 10 minutes before the first data transmission. During the operator search process, the probe will emit a continuous double LED flash. A successful connection is confirmed with a long flash. [In a gray box]

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3. Pairing

To pair the device, the probe must be in idle mode (no LED activity).

Enable Bluetooth and location services on your mobile device.

Open the DENODL® App and, from the screen of the corresponding sector, tap “Add,” then “HYDROBALL.”

Follow the app instructions to pair and configure the probe via Bluetooth. Note that Bluetooth mode on the probe can only be activated when the probe is idle (no LED activity).

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4. Configuration

Set the measurement interval.

Define the energy-saving mode. This prevents unnecessary power consumption when environmental conditions remain unchanged over several measurements.

Activate field test mode, which temporarily increases the transmission frequency to verify the probe’s operation immediately after installation and during its initial hours of operation.

Assign a custom name to your device.

Do not modify the device identifier (Alt ID). This links your probe to the application. If altered, the HYDROBALL will be unable to transmit data to the platform.

Using your mobile device’s geolocation, select the exact location of the control point and tap “Save” to complete the pairing.

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5. Connection Test

Make a hole at the chosen location to the appropriate depth. A 10 cm diameter cylindrical auger is recommended. These tools are commonly supplied for tasks like creating holes on golf courses. Keep the extracted soil in a bucket for later refilling.

Insert the probe into the provided test bag, without the cap, so you can view the LED while preventing soil from contacting the interface. Insert the probe into the hole at the desired depth.

While the probe is idle, press the button once. You will see a sequence of flashes, indicating the measurement process.

Transmission will be confirmed with a long flash.

Check in the DENODL App that the data has been recorded, confirming the measurement time matches the current time.

Once the connection test is complete, you may proceed.

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6. Referencing

Take references using nearby objects, such as with a measuring tape, to accurately position the probe.

Use the notes and photo log tools in the DENODL App to record these references. It is recommended to take installation images using the Gallery tool within the app.

Once properly referenced to ensure it can be easily found again, proceed with the installation.

7. Soil Installation

Ensure the flat and O-ring seals are properly seated and firmly close the top cap by hand. It is very important that both seals are clean (free from soil or other contaminants) and properly fitted in their slots.

These seals prevent moisture from entering the device.

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Insert the probe at an approximate 10° angle from vertical, with the ceramic part facing downward. This angle supports the hydraulic dynamics of the ceramic and prevents air or water accumulation.

With field test mode activated (see configuration section), wait for the next reading and verify again that data is being received in the app. Remember that in test mode, during the first hour after activation, the probe transmits every 2 minutes.

Refill the hole with the previously extracted soil, preserving its structure and original compaction. It is essential that no voids remain around the device, as the absence of soil may affect readings.

To ensure this, use water to fill all gaps. Recommended process: Apply soil → Add water → Press the soil gently with your hands (avoid excessive pressure) to ensure it is properly packed around the probe. Repeat this cycle until the device is completely buried.

Level the surface to prevent runoff or water pooling.

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Mark the installation point approximately 20 cm from the probe location, if possible, using a Hydrotee (red marker) or a flagged stake.

You may take additional fixed visual references to facilitate future location. Record this information in the notes and photo log section of the mobile app.

As mentioned, this can be done before or after installation.

Check the data in the DENODL App and confirm that the probe is transmitting correctly.

You should see data indicating soil saturation levels, as significant water should have been added during the installation.

Allow at least 48 hours of device operation for the altered soil's moisture conditions to equilibrate with the surrounding soil.

Soil texture analysis information will appear in the app one week after the installation date.

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To access the full user guides for the DENODL® App and HYDROBALL® probe installation, scan the QR code included in the box and in this guide below. For any questions or technical support, contact your distributor or the manufacturer’s Technical Support Service, whose contact details are found in this guide and the QR code below.

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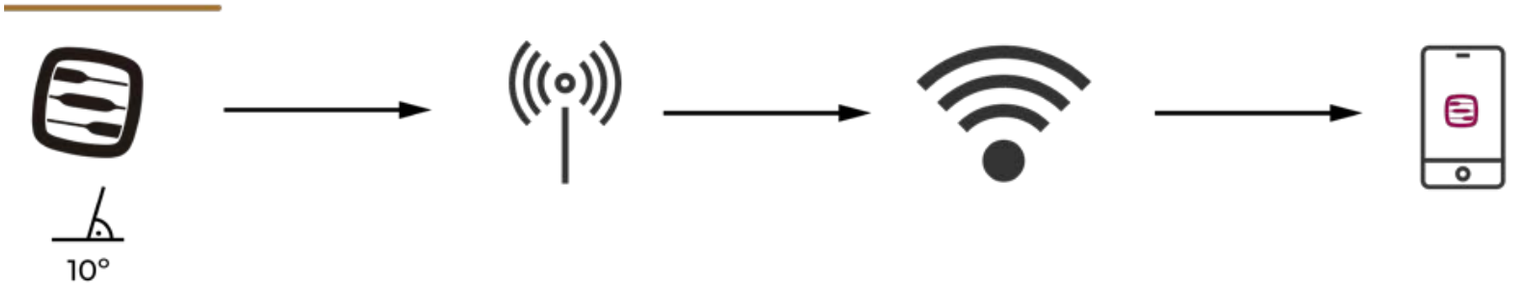

Manufacturer Information:

Company name.

Fernando Sarría Agrotechnologies S.L.

Trade name.

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