pleco™

Water Watch

INSTRUCTION MANUAL

Please read this manual before installation

PACKAGE CONTAINS:

| Sensor | Display | Container | USB charger | USB cable | Manual |

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FEATURES

- The Pleco Sensor mounts to an existing water meter and provides water consumption information to the user through the Pleco Display and the Pleco smartphone app.

- Water consumption information is provided in near real-time.

- Detects different types of water usage: Faucet, flush, shower, irrigation, and other. Usage identification is not 100% accurate due to variability in water supply installations.

- Easy setup, no tools required to install.

DESCRIPTION

SENSOR: The Pleco sensor attaches to a functioning water meter and sends water usage information in near real time to the Pleco display. No tools are required to attach the sensor to the water meter. The sensor uses four (4) standard D-cell batteries that on average are expected to last over four months before being replaced.

DISPLAY: The Pleco 5-inch touch-screen display receives sensor data and shows water usage in near real time. It works as a hub connecting to the Internet and the smartphone app. It can be wall mounted or placed on a counter or desk. The display should be within 50 ft. distance from the sensor for effective communication. It comes with a rechargeable battery that lasts over 1-hour. It is recommend to keep the display connected to the external power supply for continuous use.

CONTAINER: The container used to ship Pleco is also used to calibrate the system. During calibration you will fill the container to the 1-Gallon water mark in order to start the system. All foam packaging materials should be removed from the container prior to calibration.

APP: The Pleco app will show water usage in near real-time in your smartphone. It displays information similar to that on the Pleco display and provides a convenient way to monitor your water usage when you are away.

SETUP INSTRUCTIONS

1. Unpack and Power Up
- Package contains: Sensor, Display, Container, USB charger, and USB cable.
- Connect the power supply to an outlet and to the display and turn on the display.
- Follow setup instructions on the display.

2. Attach sensor to water meter
- Locate your water meter and make sure it's sides are accessible.
- Attach the sensor around the water meter (as a belt). Do NOT block the water meter reading dial.
- Rest the battery enclosure on the ground.

3. Deploy sensor antenna
- Unfold sensor antenna.
- Use the telescoping mast to move the antenna up as close as possible to ground level.
- Rotate antenna so that it is oriented parallel to the front of the house.

4. Setup and calibration
- Use the display to setup the system, adjust date/time, connect to Wi-Fi, and to register.
- Follow instructions on the display to initialize and calibrate the sensor. Remove all foam from container prior to calibration.
- To power up the sensor tighten the battery enclosure lid. LED will light up. After initialization LED stays off.
- Pleco is ready to use.

5. Install the smartphone app
- The Pleco app is available at no extra cost at the Apple Store and Google Play.

DISPLAY SCREENS

The Pleco display and smartphone app user interface consists of several screens used to provide water usage information and change system settings. The user navigates through the various screens by selecting the icons and menus on the touch-screen display and smartphone app.

Home Screen

The Home screen shows the total water usage in the current day and time. It also displays a daily water usage limit that is set to a default value and can be changed by the user through the settings screen. Information on sensor signal strength, time, wi-fi connection, and battery charge are shown on the top of the screen. Icons on the right of the screen are used to navigate to other screens as indicated in the figure below.
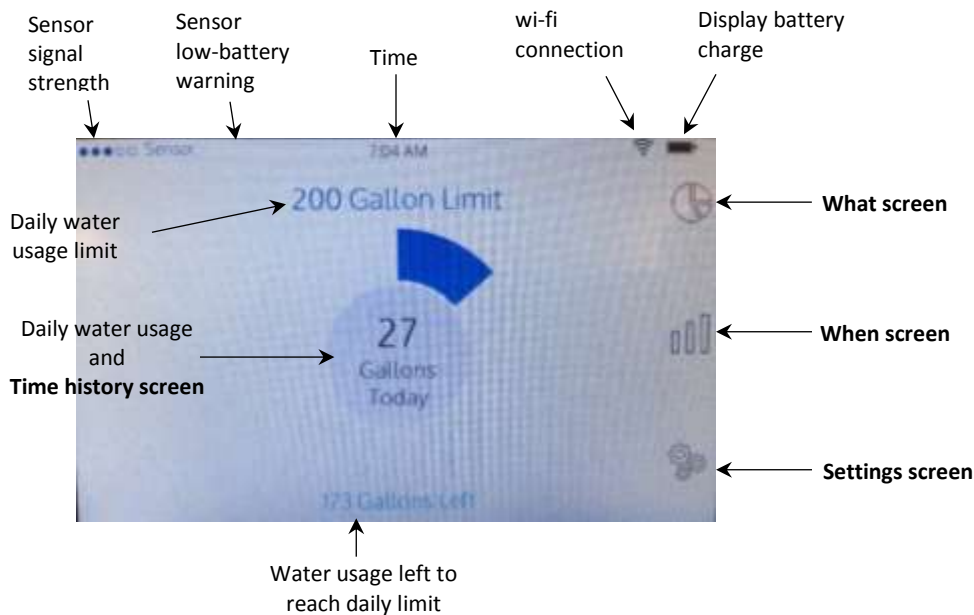
What Screen

The What screen shows what the water was used for. The system identifies 5 different types of water usage: Faucet, flush, shower, irrigation, and other. Due to variations in the water supply systems, the identification is not perfect and some water usage may be misidentified. Icons on the right of the screen are used to select usage for the current day, week, or month as shown in the figure below. Touching the pie chart will show the water used for the type selected.

When Screen

The When screen shows when the water was used. Icons on the right of the screen are used to select usage within the current day, week, or year as shown in the figure below. The scale icon on the top-right of the screen toggles between showing and hiding the usage for the previous time period for comparison.

Time History Screen

The Time History screen shows the water consumption rate (volume per unit of time, for example Gallons per minute) versus time for the last two hours. Small icons are used to identify the different types of water consumption as shown in the figure below.
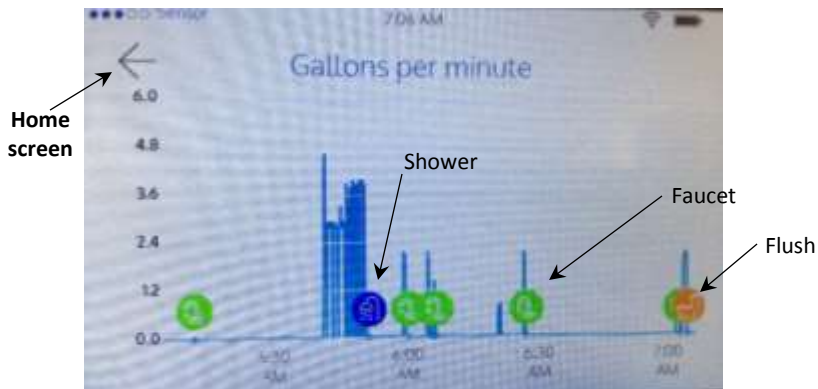
Settings Screen

The Settings screen allows the user to access product information, such as serial number and firmware version, change settings, such as wi-fi setup, time and date, change preferences, such as daily water usage limit and units of measurement, and perform system calibration, firmware update, and system reset.

BATTERY REPLACEMENT & WARNINGS

Battery Replacement

The Display uses a rechargeable Li-ion battery that is not to be replaced by the user. If there is a problem with the Display battery the user should contact Nudge Systems.

The Sensor uses four (4) standard D-cell batteries. Sensor batteries should be replaced when the sensor low battery warning is shown in the Display. **When replacing Sensor batteries, wait at least 2 minutes after removing the old batteries before inserting new batteries in the battery enclosure. This is required to ensure the Sensor is reinitialized. Once the Sensor batteries are replaced, it is necessary to pair-up the Sensor and Display by selecting "Pairing" under the Settings menu.**

Battery Warnings

- Use only authorized batteries in equipment to prevent equipment damage. Do not mix battery chemistries. For example, use all lithium or all alkaline batteries.
- Remove batteries from the sensor for long term storage to prevent damage from battery leakage.
- Don't force batteries into equipment. The batteries can be hard or dangerous to remove, causing personal injury and/or damaging equipment and battery.
- Don't mix new and old batteries in equipment to prevent charging of old batteries by new ones, which could force the old batteries into voltage reversal and violent venting.
- Don't short circuit (metal tools).
- Never attempt to charge the sensor batteries. They should be replaced when the sensor low battery warning is shown in the display.
- Proper Personal Protective Equipment (PPE), such as gloves, face shield, and apron must be worn when handling leaking batteries or electrolyte.

The Display uses a Li-ion rechargeable battery that is not to be replaced by the user. If the display battery no longer stays charged, contact Nudge Systems for assistance.
Please read the important Lithium battery safety warning below:
- If the back of the Display is warm to touch, it might be due to the Li-ion battery being abnormally warm indicating the battery Complete Discharge Device (CDD) has been depressed and is being discharged. If this occurs, unplug the display from external charger and contact Nudge Systems for assistance.
- An odor emanating from the Display indicates the Li-ion battery has vented. If this occurs, unplug the display from the external charger and contact Nudge Systems for assistance.

The Sensor requires four (4) standard D-cell batteries.
Please read the important battery safety warning below:
- Do not mix alkaline, standard (carbon-zinc) and rechargeable batteries (Nickel Metal Hydride).
- Do not mix old and new batteries.
- Use non-rechargeable batteries and replace the batteries when the sensor low battery warning is shown on the display.
- Exhausted batteries should be removed immediately and must be recycled or disposed properly according to state or local government ordinances and regulations.
- Only batteries of the same or equivalent type as recommended are to be used.
- Batteries are to be inserted with the correct polarity.
- Do not dispose batteries in a fire – batteries may leak and explode. Dispose of batteries properly according to local disposal requirements.

CARE & MAINTENANCE

Display:

- The display is designed for use indoors. It is not ruggedized and it should not be exposed to the elements, extreme temperatures, vibration or impact.
- The display is not water proof. Do not expose to rain and do not submerge under water as this will cause damage beyond repair.
- To clean display gently wipe with a monitor cleaning wipe.
- Keep the display unit away from direct heat or sunlight.

Sensor:

- The sensor is designed for use outdoors. It is ruggedized and can operate in a high humidity environment and be exposed to rain.
- The sensor is water proof but it is not designed for operation under water. Do not submerge the sensor unit into water. This can damage the unit beyond repair.
- Always replace the sensor unit batteries when the sensor low battery warning is shown on the display.
- To clean the sensor wipe with a clean damp cloth.
- Parental guidance recommended when installing or replacing the sensor batteries.

WARNINGS!

- **Choking Hazard**: Batteries, USB charger, USB cable, foam packing materials.
- **Asphyxiating Hazard**: Keep calibration container from children – may cause suffocation if placed on head.
- Heavy battery case.
- The USB charger included was selected to work with the Display battery. Do not use it to charge any other battery.
- The Display uses a rechargeable Li-ion battery that is not to be replaced by the user. If there is a problem with the Display battery the user should contact Nudge Systems.
- Parental supervision recommended when changing sensor batteries.
- Parental supervision recommended when installing Pleco.

TROUBE SHOOTING

PROBLEM	POSSIBLE REASON	SOLUTION
Display message that sensor not detected after sensor power up	-Sensor too close to display.	-Move sensor at least 15 ft. away from display during setup.
Display message that water flow not detected during setup	-Sensor not properly mounted to water meter. -Water meter not compatible with Pleco.	-Follow instructions on Display on how to mount sensor to water meter. -Check Nudge Systems website to verify that your water meter is compatible with Pleco.
Display message that water flow detected during calibration after instruction to close all water	-Other source of water usage taking place during Pleco system setup. For example, washing machine, automatic swimming pool water level control, etc.	-Make sure all water usage is stopped to complete Pleco system calibration.
Display not showing water usage after successful setup	-Sensor and display not paired. -Weak sensor signal. -Change in sensor placement on water meter.	-After replacing sensor batteries it is necessary to pair-up the sensor and display by selecting the "Pairing" option under settings. -Move display closer to sensor until sensor signal strength shows at least 2 full circles (3 preferred). -Recalibrate the system if the sensor placement on the water changed.
System not working after replacing sensor batteries	-Sensor not reinitialized. -Sensor and display not paired. -Change in sensor placement on water meter.	-When replacing the sensor batteries, wait at least 2 minutes after removal of the old batteries before inserting the new batteries. -After replacing sensor batteries it is necessary to pair-up the sensor and display by selecting the "Pairing" option under settings. -Recalibrate the system if the sensor placement on the water changed.
Wrong water usage identification	-Incorrect or inaccurate calibration. -Change in sensor placement on water meter. -Variability in water supply system.	-Repeat system calibration by selecting "Calibration" in the settings menu - Recalibrate the system if the sensor placement on the water changed. -Usage identification is not 100% accurate due to variability in water supply installations.

FCC & ISED INFORMATION

FCC and ISED electronic label can be assessed on the Pleco display by selecting "Settings" on the home screen and then selecting "Regulatory".

Replacement of factory-installed antenna is prohibited. User may not modify any element of the system hardware without express written permission of Nudge Systems.

Federal Communication Commission Statement (FCC, U.S.)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC CAUTION:
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IC WARNING

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device

Cet appareil contient des émetteurs / récepteurs exemptés de licence conformes aux RSS (RSS) d'Innovation, Sciences et Développement économique Canada. Le fonctionnement est soumis aux deux conditions suivantes:

(1) Cet appareil ne doit pas causer d'interférences.

(2) Cet appareil doit accepter toutes les interférences, y compris celles susceptibles de provoquer un ement indésirable de l'appareil.

CONTACT INFORMATION

For additional product information or questions please visit www.nudgesystems.com or contact Nudge Systems at contact@nudgesystems.com