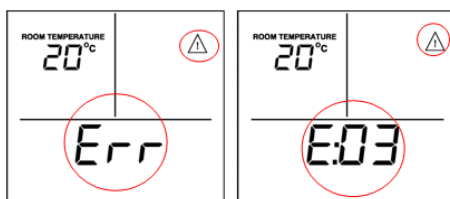


8. TROUBLESHOOTING

If the Tekelek Eco-Water Monitor does not receive or cannot understand the RF signal from the Tekelek Eco-Water Transmitter, an error message will be displayed on the Tekelek Eco-Water Monitor. The error message appears as an alternating screen showing 'Err' and 'E:0?' where ? is a number.

Error codes are listed on a label on the rear of your Tekelek Eco-Water Monitor.



| Error | Description | To Rectify |
|-------|---|---|
| E01 | Received reading is inconsistent | <ul style="list-style-type: none">- Check that the transmitter is vertical on the tank.- Check positioning of the transmitter (ensure that the transmitter is not too close to the tank sides or internal obstructions).- Ensure that the transmitter is not tightly attached to the tank.- Ensure that the tank is not overfilled and that the bottom of the transmitter is clean. |
| E02 | Reading not received after 6 hours | <ul style="list-style-type: none">- Check that the transmitter is within range of the monitor. Try and relocate the monitor to a position that is nearer a window. Remember that the transmitter communicates with the monitor using an FM signal and moving the monitor plug from possible metal obstructions can improve the signal.- Ensure the monitor is not too close to, or obstructed by, other electrical appliances. |
| | Reading received but void | <ul style="list-style-type: none">- Check positioning of the transmitter (ensure that the transmitter is not too close to the tank sides or internal obstructions).- Ensure that the transmitter is not too tightly attached to the tank.- Ensure that the tank is not overfilled i.e. there is a minimum of 120mm/5ins free space between the transmitter and water level.- Ensure that the bottom of sensor is clean.- If a bund tank, ensure that the transmitter is located on the inner tank. |
| E04 | Received Reading greater than tank height | <ul style="list-style-type: none">- Check the tank height and ensure that this information is correct on the monitor, press the ^ and v keys together to view your tank configuration. If height is incorrect, enter the SETUP mode by pressing SETUP for 3 secs, press ENTER until you reach screen 5 and adjust the height using ^ and v keys. Press ENTER to save. Press SETUP to exit Setup mode. Wait 3 hours for updated readings.- Check the transmitter is vertical and the positioning of the transmitter (ensure the transmitter is not too close to the tank sides or internal obstructions). |
| E05 | Contact Vendor | <ul style="list-style-type: none">- This is a hardware fault and requires contact with the vendor. |
| E06 | Contact Vendor | <ul style="list-style-type: none">- This is a hardware fault and requires contact with the vendor. |

9. WARRANTY

This product carries a 24 month warranty from date of original purchase from Tekelek against any deficiency or fault in manufacture. This does not affect your statutory rights or any warranty offered by the seller if different to Tekelek.

This warranty does not cover normal wear and tear, damage caused by negligence, accident, improper use or incorrect installation. Any change or modification made by the purchaser or user to the appliance will invalidate the guarantee, as would any attempted repair.

The warranty applies only when the appliance has been operated in accordance with the instructions and connected to an electricity supply which matches that shown in the manual.

The warranty will be rendered invalid if the product is resold by the end user. The product must be used solely for domestic purposes.

Tekelek Europe Ltd's obligations are limited to the repair, or at its sole discretion, replacement of the unit.

The unit should only be returned to Tekelek upon receiving confirmation from Tekelek that the return will be accepted. Tekelek distributors should get in touch in this regard with their normal sales contact at Tekelek. Other parties should only return the product for warranty assessment via the point of original purchase.

10. CONTACT INFORMATION

Should you have any queries, please fill in our online enquiry form found under contacts on our website:

Tel: +353 (0)61 471511 | Fax: +353 (0)61 471685 | E-mail: info@tekelek.ie / sales@tekelek.ie

The technical specifications of the Tekelek Eco-Water Monitor, the contents of this manual, and the images herein are subject to change without notice.

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Eco-Water Monitor Product Manual

1. INTRODUCTION

Thank you for selecting the Tekelek Eco-Water Monitor. This revolutionary monitoring system allows consumers to monitor and track their water consumption on a daily, weekly, monthly, and annual basis.

The Tekelek Eco-Water product from Tekelek Europe Ltd consists of the Tekelek Eco-Water Transmitter and Tekelek Eco-Water Monitor. The Tekelek Eco-Water Transmitter is easily installed on your storage tank to measure the level water in your tank. It transmits the water level information wirelessly to the Tekelek Eco-Water Monitor which may be located in a convenient location inside your home/office etc.

The Tekelek Eco-Water Transmitter uses ultrasonic technology to measure the distance from the Transmitter on top of the tank to the surface of the liquid in your water tank. As the amount of water in your tank decreases the distance measured increases accordingly. The distance information is transmitted wirelessly to the Tekelek Eco-Water Monitor.

Litres\Gallons and % water

Once programmed with information about your water tank's shape and size, the Tekelek Eco-Water Monitor calculates and displays the amount of water remaining in your tank in litres\Gallons or as a percentage of the tank capacity. In addition (as water is consumed over time) the Tekelek Eco-Water Monitor calculates and displays usage information including the average amount of litres\gallons used per day, per week, over the last 30 days, and over the last 365 days.

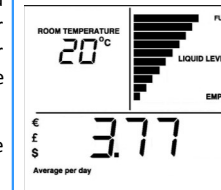
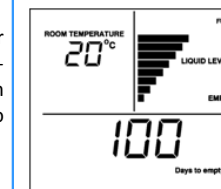
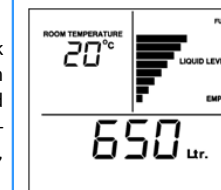
Days to Empty (DTE)

As the Tekelek Eco-Water Transmitter continuously measures and transmits the water level, the Tekelek Eco-Water Monitor retains this information allowing it to 'learn' historical water system usage patterns and so predict the 'Days to Empty' for your tank. With this information you can ensure that you fill your water tank at the correct time – not too soon, and more importantly, not too late.

Installation

The Tekelek Eco-Water Transmitter fits into the standard 32mm/1.25inches aperture found on most modern water storage tanks and is suitable for use with almost any plastic or metal tank up to 3m/9.8feet tall, including Bunded and Single Skin Water tanks. If your tank is a bunded tank, ensure that you mount the Tekelek Eco-Water Transmitter on the inner tank.

As part of the installation the Tekelek Eco-Water Transmitter and Monitor are 'synchronised' together to ensure there is no interference from other nearby transmitters.



2. TEKELEK Eco-Water – FEATURES AND FUNCTIONS



Tekelek Eco-Water features

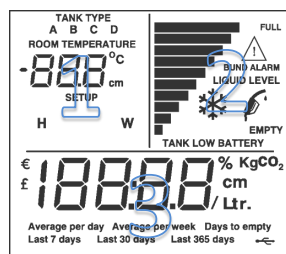
| | | | |
|----|---------------------|----|--|
| 1 | LCD Display | 11 | Error code information |
| 2 | MODE key | 12 | Power/data cable |
| 3 | DOWN key | 13 | Manufacturing information |
| 4 | ENTER key | 14 | Location feature (see STEP 3 of this installation guide) |
| 5 | UP key | 15 | USB connector |
| 6 | SETUP key | 16 | Mains power plug |
| 7 | Alarm Red LED | 17 | Tekelek Eco-Water Transmitter |
| 8 | Wall mount feature | 18 | Self-tapping screws x 2 |
| 9 | Beeper aperture | 19 | Weather seal (Gasket) |
| 10 | RESET button access | 20 | Tekelek Eco-Water Transmitter water Level display |

Tekelek Eco Level Key Functions

| MODE | When in NORMAL mode press MODE to move between the current and the historical information screens. |
|--------------|---|
| | Press UP to move between screens when in NORMAL mode. Use it to increase a setting when in SETUP mode. |
| ENTER | The ENTER key is used only in SETUP mode. It is used to save the setting shown on the display and then move automatically to the next SETUP number. |
| | Press DOWN to move between screens when in NORMAL mode. Use it to decrease a setting when in SETUP mode. |
| SETUP | Press SETUP for 3 seconds to enter SETUP. When in SETUP, press SETUP to exit from SETUP mode. |
| | When in NORMAL mode, by pressing together and releasing, the screen will flash the current tank configuration for 20 seconds. Press any key to return to NORMAL mode. |

LED

The red light above the ENTER key flashes when there is an Alarm condition (see section 6) and on receiving an RF signal from the Tekelek Eco-Water Transmitter



DISPLAY - SYMBOLS & INDICATORS

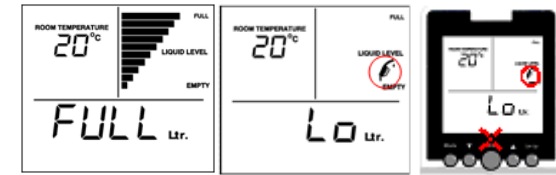
The Tekelek Eco-Water contains a display that conveys a variety of information during normal use and during its initial setup and configuration for use with your water tank. The display contains three sections (1, 2, & 3) as indicated in the diagram.

5. TEKELEK Eco-Water - TANK SETUP

To calculate the volume in your tank the Tekelek Eco-Water Monitor needs to know the shape of your tank. There are three basic shapes as illustrated. Identify the shape that is closest to the shape of your tank. Each Tekelek Eco-Water Monitor is supplied with the default settings as shown. The Tekelek Eco-Water Monitor must then be configured to your own tank's dimensions (see installation guide). Minimum and maximum allowable values for tank dimensions are shown in this table.

| | Tank Capacity (Ltr.) | | | Tank Height (cm) | | | Tank Width (cm) | | |
|--------|----------------------|---------|------------|------------------|---------|------------|-----------------|---------|-------------|
| | Low limit | Default | High Limit | Low limit | Default | High Limit | Low limit | Default | High Limit |
| Type A | 300 | 1000 | 19999 | 50 | 100 | 300 | N/A | N/A | N/A |
| Type B | 300 | 1000 | 19999 | Tank Width | 100 | 300 | 50 | 50 | Tank Height |
| Type C | 300 | 1000 | 19999 | 50 | 50 | Tank Width | Tank Height | 100 | 300 |

6. TEKELEK Eco-Water ALARMS/ INDICATIONS



Full Indication

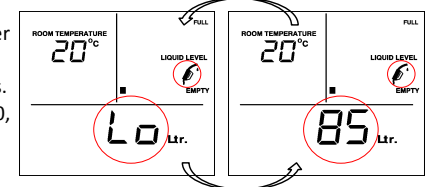
When the level in your tank reaches 12 cm from the top of the tank, i.e. from the bottom of the Tekelek Eco-Water Transmitter, the main display will show 'FULL'.

Low Level Indications

When the tank level falls to within 14cm of the bottom of the tank the 're-fill' symbol will flash. When the tank level is such that there is below 10% of the usable volume of water left in the tank, the CURRENT information screen alternates between showing the 'Ltr.' (or % or DTE) and 'Lo'.

If the level then drops such that there is below 5% of usable water left:

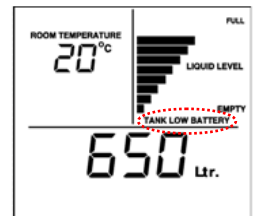
- 'Lo' is displayed constantly on the CURRENT information screens.
- The monitor beeps 5 times, repeating every hour, i.e. 10:00, 11:00, 12:00, 13:00, 14:00...
- The RED light flashes.



7. TEKELEK Eco-Water TRANSMITTER BATTERY CHANGE

If the battery in the Tekelek Eco-Water Transmitter needs to be changed the display will provide advance warning by showing the 'TANK LOW BATTERY' text below the bar-graph.

- Remove the Tekelek Eco-Water Transmitter from the tank and move to a safe location
- The battery can be accessed by removing the 4 self-tapping screws from the base of the unit.
- Remove the old battery noting the orientation ('+' mark facing outwards) and replace it with a new battery, 3V CR2450
- Re-assemble, ensuring the O-ring is undamaged and secured in position.
- Re-locate the transmitter on the tank.



There is no need to re-synchronise the transmitter with the monitor when the transmitter battery is changed.

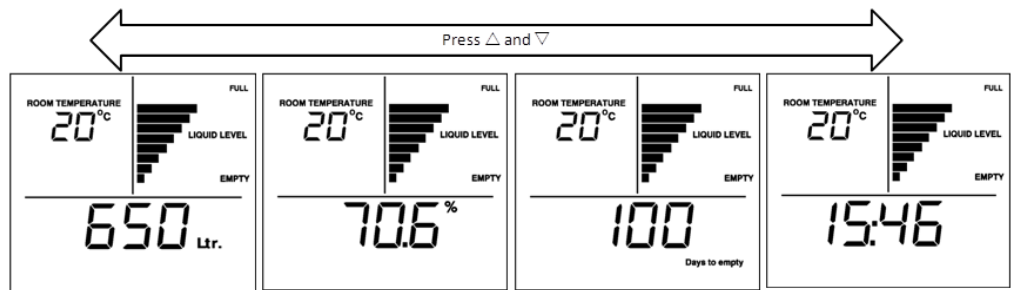
Disposal

The crossed out dustbin on the packaging indicates that this product and its battery shall not be treated as household waste. Proper disposal will help prevent potentially negative consequences for the environment and human health. For more detailed information about recycling of this product or battery, please contact your local recycling centre or the shop where you purchased the product.

4. DISPLAY SCREENS

There are two types of information displayed on the Tekelek Eco-Water Monitor:

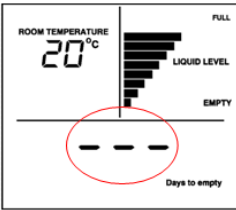
CURRENT information screens – used in normal mode to show the current status of the water level in your tank. Change between the ‘Ltr.’, ‘%’, ‘Days to empty’, and Clock screens using the Δ and ∇ keys.



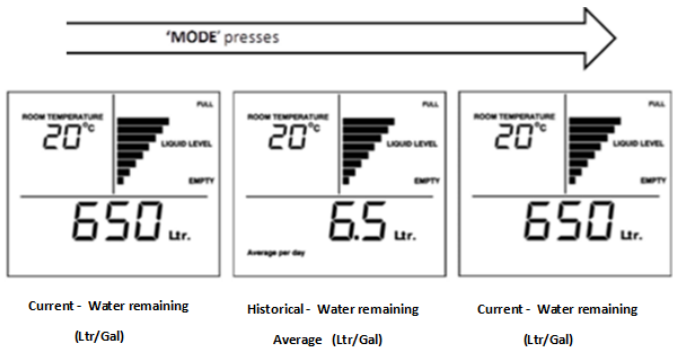
For approximately 1 week after the Tekelek Eco-Water is installed, it collects data so that the ‘Average per day’ value may be calculated. During this period the screen will flash ‘---’ when showing ‘Days to empty’. (In the picture, ‘flashing’ is indicated in red).

After this period, the display may continue to show ‘---’ (but not flashing). This indicates that a meaningful value could not be calculated. This may occur in periods when there is no (or extremely low) usage. The ‘---’ may be displayed in any of the HISTORICAL information screens under these conditions.

This may also happen if the Tekelek Eco-Water Monitor is been unplugged for some time. When sufficient data has been gathered, the screen will revert to normal after a period from a few hours up to a maximum of 1 week.



HISTORICAL information screens showing ‘Water usage – Litres\Gals’. Pressing **MODE** and Δ/∇ accesses these screens.



6 The Tekelek Eco-Water Monitor will automatically return to the CURRENT information screen after 30s with no key presses within the HISTORICAL information screens. The maximum value displayed is 19999.

- 1 - Used for SETUP and displays SETUP number, and in normal use displays room temperature.
- 2 - Tank information including a visual bar-graph of the water level in the tank.
- 3 - Information about the remaining usable water in litres\Gals or as a %, the ‘Days to Empty’, and the average and cumulative use of water in litres\Gals. Time is also displayed here.

| | |
|------------------|---|
| TANK TYPE | Indicates the tank type being selected. |
| A,B,C | A, B, C are types of tank shapes (see diagrams in section 5). |
| ROOM TEMPERATURE | The value displayed is the room temperature. |
| 20 | Numeric display - shows the room temperature in normal mode e.g 20. |
| 3 | Shows the SETUP mode number when in SETUP mode, e.g. SETUP mode 3 |
| °C & °F | The value displayed is temperature in degrees Celsius/Fahrenheit. |
| cm\inch | The value displayed is in centimetres/inches. |
| SETUP | SETUP mode is active. |
| H | The value displayed is the tank height. |
| W | The value displayed is the tank width. |
| | Monitor Display: Bar graph indicator of liquid level - each bar represents 10% of tank height. . |
| | Tekelek Eco-Water Transmitter Display: Tanks 1m/3.3ft. in height or greater - each bar represents 1/10th of the top 1m/3.3ft of the tank. Tanks less than 1m/3.3ft. in height - each bar represents 1/10th of 1m/3.3ft |
| Full | Indicates the ‘Full’ level of the bar graph indicator. |
| Liquid Level | Indicates the bar graph is showing the liquid level. |
| EMPTY | Indicates the ‘Empty’ level of the bar graph indicator. |
| BUND ALARM | When flashing, there has been a leak into the ‘Bund’ (double skinned tanks). The 10 bars and the RED LED will also be flashing at the same time. |
| TANK LOW BATTERY | The transmitter battery needs to be changed. |
| | Flashing - The remaining water level in the tank is at 10% or below of tank height |
| | Flashing - There is a problem with the RF signal from the transmitter. |
| | The temperature is close to or below the limit of operation of the transmitter - the information accuracy may be affected. |
| % | The value displayed is the % of usable water remaining in the tank. |
| cm\inchs | The value displayed is in centimetres/inches |
| Ltr\Gal | The value displayed is in litres/gallons. |
| | USB data activity. |
| AVERAGE PER DAY | The value displayed is the average per day based on the last 7 days' usage. |
| AVERAGE PER WEEK | The value displayed is the average per week based on the last 14 days' usage. |
| DAYS TO EMPTY | The value displayed is the estimated number of days of water remaining in the tank. It is computed by dividing the volume of usable water left in the tank |
| LAST 30 DAYS | The value displayed is the estimated usage over the last 30 days. |
| LAST 365 DAYS | The value displayed is the estimated usage over the last 365 days. |

3. PRODUCT INFORMATION

a) DEFINITIONS/GLOSSARY

| | |
|---------------------------------------|---|
| Ullage | The distance from the transmitter to the surface of the liquid in the tank. |
| Outlet | The connection point from which water is drawn from your tank. It is typically located 8cm/3ins. above the bottom of your tank in one of the sidewalls. Water below the outlet level is not usable. |
| Vent | A small chimney-like feature on the top of your tank. It allows the air within the tank to be released when the tank is being filled. |
| Brimful Tank Capacity | The maximum amount of liquid that can fit in the tank. |
| Usable capacity | The nominal capacity of the tank minus the amount of water that is below the outlet or discharge point. If the water level falls to the level of the outlet, your tank is effectively empty. |
| Matching | The process of uniquely matching the transmitter and the monitor. |
| Days to empty (DTE) | A prediction of the number of days in which the water level will reach the outlet or the discharge point. The DTE calculation is based on your recent usage patterns. |
| RF | Radio Frequency - the tank level measurements are conveyed wirelessly to the monitor from the transmitter using RF transmissions. |
| SETUP mode | SETUP mode is used to configure the monitor for your water tank. |
| LEARN mode | LEARN mode is used to match the transmitter with the monitor |
| NORMAL mode | NORMAL mode is for day-to-day use of your monitor - this mode displays current and historical Information. |
| CURRENT information screens | Screens in NORMAL mode that display information about the current status of the amount of water Remaining in your tank in litres/gallons, as a %, and the DTE. |
| HISTORICAL information screens | Screens in NORMAL mode that display information about your historical usage of water in litres/gallons, Cost, and environmental impact. Cost, and environmental impact. |

b) TECHNICAL SPECIFICATIONS:

Tank Size

Min. Depth : 0.5m/1.64feet Max. Depth:

3m/9.8feet

Max. Tank Volume: 19999L/Gal

Displays

Multi-function LCD display including:

- 10 bar-graph level indication on both Tekelek Eco-Water Monitor and Transmitter*
- Display of various current and historical values (Tekelek Eco-Water Monitor only)
- Display control with five control buttons
- Red LED for low level indication at 5% or less of usable water remaining

Audible Alarm

- Audible alarm sounds every hour on the hour when the tank level is low

Max communication distance

Typically 150m\492feet in normal 'line of sight' conditions

Wireless Communications

433MHz FM transmission (EN300-220)

Power Supply

- Tekelek Eco-Water Transmitter—3V LiMn cell, CR2450

- Tekelek Eco-Water Monitor:

- Receiver: 5V DC (40mA)

- Backup battery: 3V LiMn cell, CR2450

Mains Power Supply (incl.) for Tekelek Eco-Water Monitor

150V-240V, 50-60 Hz, meets EN60950-1 (Eco-Water Monitor use only—not for use with any other device)

Battery Life

Tekelek Eco-Water Transmitter: 5 years (estimated life)

Tekelek Eco-Water Monitor – Receiver memory back-up battery: 3yr if device is not plugged in**

Dimensions

Tekelek Eco-Water Transmitter: 140m x 70mm x 40mm
55.1inch x 27.5inch x 15.7 inch

Tekelek Eco-Water Monitor: 120mm x 90mm x 50mm
47.2 inch x 35.4inch x 19.6inch

Max and Min Operation (Transmitter)

Operating temperature range: -10°C/50°F to +60°C/140°F. C/

Operating Humidity : 0 - 95% non-condensing

Hole size for fitting transmitter: 32mm/1.25inch diameter

c) NOTES:

- Please retain this product manual and the installation guide. It contains practical instructions, technical specifications and safety precaution warnings you should know about.
- The maximum **displayed** value for all measurements and computed values is 19999. If a measurement exceeds this value, the display will flash. This does not affect data calculations or alarm functions.
- When used according to recommendations, the Tekelek Eco-Water monitors the water level in your tank and calculates and presents figures relating to the remaining water and the historical usage. The Tekelek Eco-Water must not be used as verification of a 'Weights and Measures' certified dispensing meter.
- Patents pending or covered by one of the following patents: S2003/0882, EP2131164 (A1), US2006261966 (A1), US7277020 (B2), IE20030882 (A2), S2008/0466, US2009/0303059 A1
- For correct usage calculation, a minimum of 7 days between tank fills is required.
- The Tekelek Eco-Water Monitor is intended to be connected to a power source continuously. It contains a small battery to keep time during power cuts. If the Tekelek Eco-Water Monitor is left unpowered for an extended period then the battery will deplete and information may be lost. When you are not using water system, you may unplug the Tekelek Eco-Water and store it until you wish to use your water system again. Its back-up battery and internal clock keep track of the days as they pass. (Cont'd across...)

When you next use it, on starting to use your system again, the Tekelek Eco-Water will continue monitoring your water usage.

- When the Tekelek Eco-Water has been unplugged and is plugged in again, it will start up in 'Lrn' mode. Simply press any key to exit.
- When you are receiving a water fill, the Tekelek Eco-Water Transmitter cannot receive a reliable echo due to turbulence within the tank and may cause the Tekelek Eco-Water Monitor to temporarily display some error messages. Should the tank be filled above the recommended 95% this will obstruct the transmitter signal until the water level drops below 120mm\4.7inches from the transmitter. The transmitter will be unable to send accurate readings during this period.
- The Tekelek Eco-Water owner should note that the first fill amount of water into a tank will differ from the amount shown on the display. This is due to the fact that the Tekelek Eco-Water Monitor displays the volume of Usable water available. The Tekelek Eco-Water Monitor in its calculations makes an allowance of 8cm\3.1inches of unusable water in the bottom of the tank due to the location of the bottom outlet.
- Not suitable for pressurised containers. Only use on tanks vented to the atmosphere.
- Only access the Reset Switch if instructed by Tekelek.
- Changes in temperature can result in contraction and expansion of the tank and hence can affect the tank capacity. Such changes may affect your readings.

d) GENERAL PRODUCT SAFETY, CARE AND USE GUIDE LINES

- To ensure that you use your product correctly and safely, please read the warnings, safety precautions and notes below regarding use of and caring for your Tekelek Eco-Water Monitor and Transmitter.
- Do not use this product where the use of radio frequency products can cause malfunction in the control devices of other equipment i.e. hospitals, aircraft, etc.
- Do not subject the product to excessive force, shock, dust, temperature or humidity.
- The LCD panel behind the display lens is made of glass, and may break if the unit is dropped, impacted or subjected to shock.
- Take special care when handling a damaged display, as the liquid crystals can be harmful to your health.
- Keep the product away from heat sources i.e. radiators, stoves, heaters, etc.
- Do not use the Tekelek Eco-Water Monitor in or near water or in high moisture areas i.e. Bathroom
- Do not tamper with the Tekelek Eco-Water Monitor's internal components. This will invalidate the warranty.
- Do not attempt to repair the product yourself. Contact the retailer or our Customer Service Department.
- Do not dispose of old batteries as unsorted municipal waste, do so in accordance with your local waste disposal regulations.
- When disposing of this product do so in accordance with your local waste disposal regulations
- Do not scratch hard objects against the Tekelek Eco-Water display as this may cause damage