

ULTRAAQUA

UV DISINFECTION SYSTEMS

Operating instructions for UVT Handheld Monitor



Warning



To avoid risk of electric shock, do not open the device. Refer servicing to qualified personnel only.



Do not place device in a location near heat sources, or in a place subject to direct sunlight, excessive dust or mechanical shock.



Batteries or battery installed apparatus shall not be exposed to excessive heat such as fire sunshine or the like.



Monitor contains a UV LED emitting device. Do not look at the probe of an operating monitor without wearing proper eye and skin protection.

Install unit so that power cord is protected from mechanical damage and can be easily unplugged from device.



Do not use the provided power/data cord if it is damaged. Use of a damaged cord may result in damage to the device or fire.

Do not pinch the power/data cord between heavy objects



Device should only be used with provided 24V DC power supply or used with a site supplied 24V DC source.

Any changes or modifications not expressly approved in this manual could void the warranty.

Introduction

The Ultraaqua UVT LED is the world's first family of UV-T monitors that uses a UV-C LED instead of a mercury-based lamp as a light-source.

Ultraaqua UVT LED model is used for benchtop and off-line field measurements. Unit comes standard with a battery for cordless operation, charger, adapters and cleaning swab.

Overview

The Ultraaqua UVT LED can be used to measure various types of water including wastewater and drinking water. The UVT monitoring device includes a UV light source and a UV sensor.

It is operated by calibrating the Ultraaqua UVT LED in de-ionized water. After calibration

is complete, place the measurement head into a water sample. The water sample should only be stationary. The water sample surrounds the measurement head in between the UV light source and the UV sensor. The UV sensor measures the amount of UV light that the UV sensor is exposed to, measuring the amount of UV light that passes through the fluid sample. This measurement is then compared internally, in the firmware, to the stored value from the calibration and displayed as a percent relative to the value achieved using de-ionized water.



Number	Description
1	LCD Display
2	Read/Calibrate Button
3	Measurement Head
4	Protecting cover for measuring head
5	Power supply
6	Adapter

Quick Start Guide

Connect 5 pin connector to the UVT monitor.



Hold pressed the **C** button for more than 3 seconds until the LCD display backlight begins flashing blue to register the calibration value.



Plug the Power Supply into wall to begin charging the battery.

Battery will take approximately 15 hours to reach full charge.

DO NOT TAKE MEASUREMENTS WHEN CHARGING.

Calibration

The Ultraaqua UVT LED should be calibrated prior to initial use. The monitor should be re-calibrated before each day of use and re-calibrated as needed throughout the day.

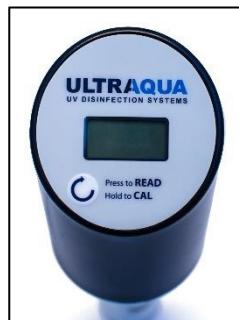
The Ultraaqua UVT LED can be calibrated at any time by inserting the measurement head into a sample of de-ionized water.

Cycle the measuring instrument in the sample of water to ensure there are no air bubbles on the measuring windows.

Short press the **C** button to take a measurement.

ONLY if the LCD display reads measurement greater than 99.9%, the value can be registered as calibration value.

Measuring



To take a measuring follow the next steps:

- 1) Insert the measurement head into the sample



- 2) Push the **C** button for more than 1 second. The display will show -00,1.



- 3) Hold the measuring head into the water sample for more than 10 seconds.
4) When the backlight flashes 2 times the reading is done.
5) Remove sensor from the sample vessel. The sensor is now ready for a new measurement.

IMPORTANT!

Do not remove sensor from the sample before the measuring time of 10 seconds is up. Wait for the blue backlight to flash twice.

After measuring, always rinse measuring head in de-ionized water to avoid fouling.

Cleaning Procedure

IMPORTANT!

After measuring, always rinse measuring head in de-ionized water to avoid fouling.

When fouling of the quartz windows are suspected, The Ultraaqua UVT LED should be cleaned according to the following procedure:

- 1) Remove Ultraaqua UVT LED from the process.
- 2) Use the Ultraaqua UVT LED cleaning swab to gently clean the quartz measuring windows in front of the sensor

- 3) Fill a container high enough to completely submerge the measuring portion of the tip in the 15-20% solution of phosphoric acid or food grade citric acid.

- 4) While the unit is still powered, allow unit to soak for 30 minutes.

- 5) After 30 minutes soak, rinse measuring tip with de-ionized water to rinse off excess Calcium Lime and Rust remover.

Maintenance

Do not charge the UVT monitor during cleaning procedure.

The UV-C light source has a lifetime of 10 years. However, in order to ensure optimal performance, it is recommended to follow the cleaning procedure for the measuring head.

Charge the monitor every week.

Perform a check measurement to ensure that the UVT monitor is still calibrated.

The monitor should be re-calibrated before each day of use and re-calibrated as needed throughout the day.

Service

The monitor needs to be serviced if it cannot be calibrated or if the readings are not accordingly.

Contact ULTRAAQUA for service.

Battery

The UVT can take up to 350 measurements per week under a single battery charge. Battery should be charged weekly for correct operation.

Warranty

This UVT-LED product, as supplied and by ULTRAQUA, or an authorized ULTRAQUA distributor, and delivered new, in the original carton is warranted by ULTRAQUA against manufacturing defects in materials and workmanship for a limited warranty period of: Two (2) years on all components

The limited warranty commences on the date of shipment. To make a warranty claim, the purchaser must contact ULTRAQUA or distributor for problem determination and have a receipt of the product. The serial number must be presented for warranty processing to begin. ULTRAQUA will repair, or replace, any part found to be defective, in our opinion and at no charge as stipulated herein, with new or reconditioned parts during the limited warranty period specified above. All replaced parts and products become the property of ULTRAQUA and must be returned to ULTRAQUA.

Replacement parts and products assume the remaining original warranty, or ninety (90) days, whichever is longer.

This limited warranty covers manufacturing defects in materials and workmanship encountered in normal use of this product, and shall not apply to other type of damage brought to the product, including but not limited to: damage which occurs in shipment; delivery and installation; applications and uses for which this product was not intended; altered product or serial numbers; cosmetic damage or exterior finish; accidents, abuse, neglect, fire, water, lightning or other acts of nature; use in applications with water temperature and ambient air temperature over 38°C, use of products, equipment, systems, utilities, services, parts, supplies, accessories, applications, installations, repairs, external wiring not supplied or authorized by ULTRAQUA, or which damage this product or result in service problems; incorrect supply voltage, fluctuations and surges in electrical supply; customer adjustments and failure to follow operating instructions, cleaning and maintenance instructions that are covered and prescribed in the Operations and Maintenance manual.

This limited warranty shall not extend to anyone other than the original purchaser of this product either from ULTRAQUA directly or through an authorized ULTRAQUA distributor, it is non-transferable and states the exclusive remedy.

Troubleshooting

Fault	Possible Solution
Ultraaqua UVT LED will not switch on	- Check connections in power cabinet to ensure 24V power is being supplied - Check connections in female 5-pin connector for connection tightness - On battery powered versions, plug unit in to recharge batteries and run unit on line power.
UVT reading is lower than expected	- Follow cleaning procedure remove foulant - Unit needs to be recalibrated according to outlined calibration procedure
UVT reading is higher than expected	- Follow cleaning procedure to remove foulant - Unit should be recalibrated according to outlined calibration procedure
UVT reading is zero	- Follow cleaning procedure to remove foulant - Unit should be recalibrated according to outlined calibration procedure - LED or sensor is no longer working. Contact Ultraaqua for service. - Water has high absorbance and is not letting the UV-C pass through the sample
Unit will not calibrate back to 99.9%	- Contact Ultraaqua for service.
Battery	