

# Quick Start Guide

AquaLab TDL Water Activity Meter



**AQUA  
LAB**<sup>®</sup>

# The Setup

Congratulations on your new AquaLab TDL instrument. This guide will help you properly setup and begin gathering data in just a few short steps.



1



Place on level surface,  
in a stable environment.

Optimal Temperature 25 °C

2



Plug in instrument with black  
power cord. Turn on by flipping  
the rocker switch on the back of  
the instrument.

3



Let instrument warm up for  
15 minutes.

4



Wash hands and continue  
reading this guide during  
instrument warm up.

# What's Included?

**Standards**  
Trial Package

**Lids**  
Trial Package

**Cups**  
Trial Package

**Operator's Manual**

**USB Cable**

To connect your instrument to your computer.

**Verification Standards\***

If you don't have two boxes go to [store.aqualab.com](http://store.aqualab.com) to purchase.

**Power Cable**



**AquaLink 4**  
Software to save,  
export, and graph  
your data. Registration  
key inside cover.

**Sample Cups\***  
500 per case.

\*Periodically purchase  
at [store.aqualab.com](http://store.aqualab.com)

# Primary Standard

- 1 While the instrument warms up, choose a verification standard from the trial bag of the vials hanging on your instrument, or in a box purchased separately. Choose one that is close to the water activity of the sample you are measuring. If you need help determining which standard should be your primary standard please call AquaLab Customer Support.

Note: The bag of standards included with your instrument is a trial pack containing different standards. Each vial has its water activity value stated on its side. The 0.760 vial will state:  $a_w = 0.760 \pm 0.003$ .

- 2 Twist off the cap of the vial you have chosen as your primary standard and pour the contents into a sample cup.

Note: Make sure the liquid covers the bottom of the sample cup OR for detailed instructions, see Chapter 8 in the operator's manual.

- 3 After the instrument has warmed up for 15 minutes, place a sample cup into the sample chamber and close. You will hear a 'click' when the chamber is sealed and the latch is engaged.

1



2



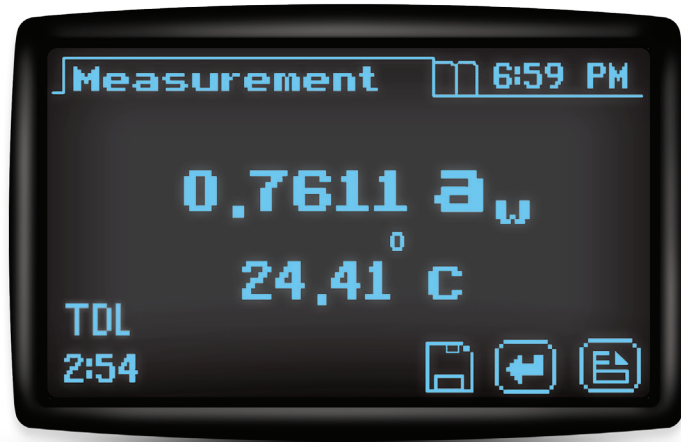
3



4



Important: The bag of lids is to cover samples to prevent moisture loss or gain if you do not immediately test samples. Do not place a sample cup with a lid into the chamber.



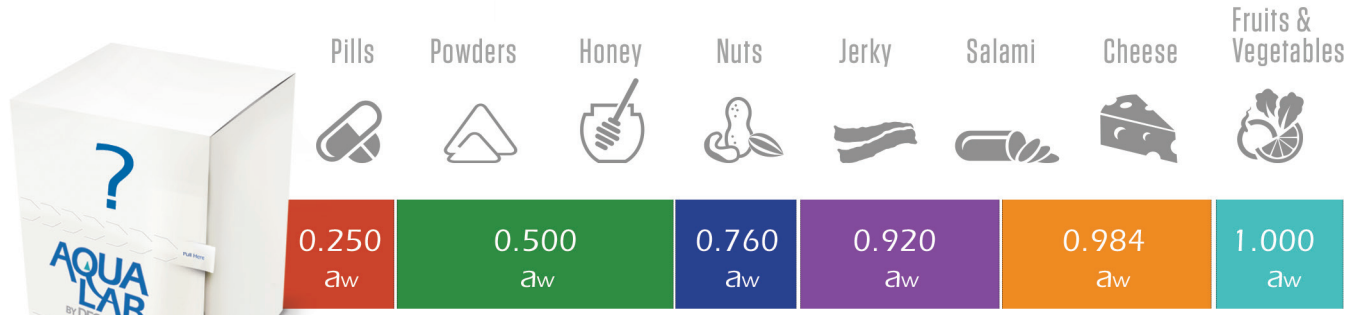
Screenshot: Final reading with the 0.760 Standard.

- 4 Remove the Styrofoam ball from the lever and move the lever to the left (Read) to start your first reading.
- 5 Take two readings. The water activity readings should be within  $\pm 0.005$  water activity of the given value for the verification standard. Reading is complete when your TDL instrument 'beeps' and displays the 'save' icon and read time. A predictive reading shows on the screen after about 1 or 2 minutes. Wait until the instrument beeps and the wheel stops spinning before trusting the reading.

Note: If you are using the 0.760 standard as your primary standard, it should measure between 0.755 and 0.765.\* If your primary standard measures in spec, move on and determine your second verification standard. If not, verify temperature is within  $\pm 1$  °C of 25 °C, clean the instrument, retry, and then see Section 6 in the Operator's Manual for detailed cleaning instructions. Dispose of sample cup.

\*Accuracy of the TDL  $\pm 0.005$  aw @ 25 °C.

# Determine Secondary Standard



- 1** If your primary verification standard read within  $\pm 0.005$  of the given value for that standard, identify the range of water activity you plan to test and whether it is above or below your primary standard.
- 2** Choose a second verification standard that borders the range of water activity you plan to test. For example, if you plan to test for water activity readings ranging between 0.713 and 0.621 you should use the 0.760 as your primary standard and the 0.500 as your secondary standard.
- 3** Conduct a two-point performance verification daily. If you need guidance on which two standards to use, please contact support:  
  
509-332-5601  
support@aqualab.com

- 4 Locate a vial of the Secondary Verification Standard from the bag of standards that came with your TDL instrument.
- 5 Twist off the vial cap and pour the contents into a new sample cup.
- 6 Read the second standard by placing the sample cup into the chamber, closing the lid, and moving the lever to the left. Take a reading.

If the value of the verification is within  $\pm 0.005$ , it is safe to start testing your product.

Standard not measuring in spec: If the instrument doesn't measure within specifications, clean the chamber and retry. Verify temperature. See Chapter 6 in the Operator's Manual for cleaning instructions, or contact AquaLab Customer Support if the issue persists.

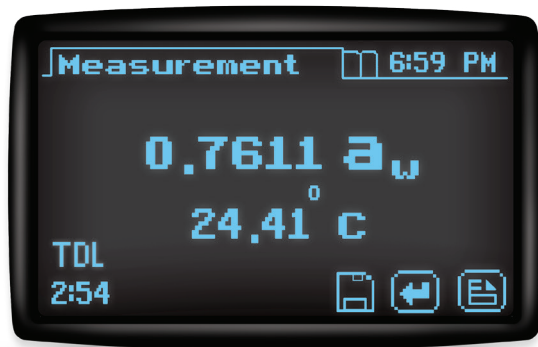


# Ready! Sample Test

- 1** Place a sample of your product in a new sample cup.
- 2** Cover the bottom of the sample cup as much as possible.
- 3** If your product is larger than the cup, it will be necessary to make the product smaller to fit the sample cup.
- 4** Ensure the rim and outside of the sample cup are clean.
- 5** If you don't immediately test the sample, cover it with a lid to avoid moisture loss or gain.
- 6** Ensure sample temperature is within 4 °C of the instrument temperature.







The final reading will be displayed after the instrument 'beeps' and the 'Save' icon appears. The temperature displayed is the sample temperature. Use a new cup for each sample.



Important: Avoid tipping or moving the instrument with a sample in the chamber. This may contaminate the sensors.

# Screen Options

## Configuration Tab

Allows user to view and adjust settings.

## Measurement Tab

Displays water activity reading and temperature.

## Sample Temperature

Shows temperature of sample during and at the end of a reading.

## Sensor Type

## Time

Shows read time of the measurement.

## Save

Allows user to save and label a reading.

## Enter

Starts subsequent readings while chamber is sealed.

## Data Tab

Displays saved readings.

## Clock

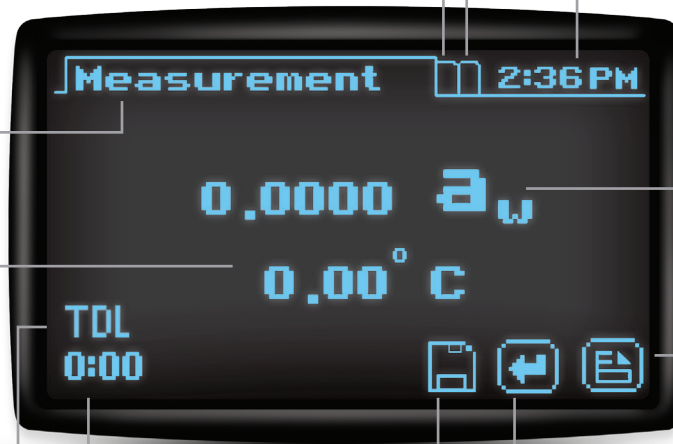
Displays current time.

## Measurement Reading

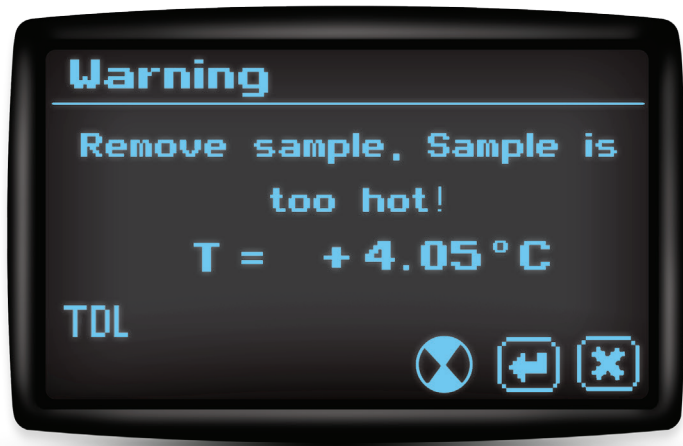
Shows predictive reading after 1 or 2 minutes and final reading after about 5 minutes.  $a_w$  is the abbreviation for water activity.

## Menu

Allows user to toggle between tabs.



# Troubleshooting



## Sample Too Hot!

Remove the sample immediately to prevent condensation inside the sample chamber.

## Read time greater than 5 minutes.

See Section 12 in the Operator's Manual.

For all other questions, please see your instrument Operator's Manual. If problems persist, contact Customer Support.

# Maintenance

**AquaLab offers an Annual Calibration Service which includes:**

- Factory calibration
- Firmware update
- Thorough cleaning
- Extended warranty
- New cleaning kit including all supplies needed for the coming year
- Current calibration certificate to keep on file for auditing purposes



Cleaning Kit: You must clean your TDL before the first use. The TDL Cleaning Kit contains a DVD on how to clean your instrument. For comprehensive cleaning information, read Section 6 in the Operator's Manual

# AquaLink 4

Make Your Data Meaningful. AquaLink 4 software is included with your AquaLab instrument. Includes USB cable to connect your instrument to your computer.

## With AquaLink you can:

- Graph data to analyze and investigate trends.
- Export data to Excel and other programs.
- Back up data to a safe location.

## Some additional benefits are:

- No need to write your readings down and struggle with transcription errors.
- Complete details of each reading are saved including temperature, date, time, and user.
- Easily share your data and make more informed decisions quickly.



Questions with AquaLink 4/AquaLink 4 Part 11 Compatible Version,\* please call AquaLab Customer Support at 509-332-5601 or email at support@aqualab.com

\*Part 11 Compatible version is available.

# Water Activity Education

Learn more about using water activity for your specific application.



Get everyone on your team certified for this instrument.

Explore several free courses from Microbial Growth to Moisture Sorption Isotherms.

[aqualab.com/university](http://aqualab.com/university)

Complete moisture analysis with these AquaLab products:



### Series 4

Water Activity Meter.



### 4TE

Water Activity Meter.  
Temperature Control  
(Between 15-50 °C).



### 4TEV

Water Activity Meter.  
Temperature Control  
(Between 15-50 °C).  
Volatiles Sensor.



### DUO

Moisture Analyzer.  
Water Activity and  
Moisture Content.



### TDL

Tunable Diode Laser  
Water Activity Meter.



### Standard Vials

Performance Verification  
Standards Boxes of 50  
Single Use Vials.



### Sample Cups

Fits most AquaLab  
instruments. Contains  
500 cups per case.



### AquaLink 4

Data Management Software.  
Backup, graph, and share  
your data.



### VSA

Vapor Sorption Analyzer.  
Dynamic & Static Moisture  
Sorption Isotherm generation.



### TrueDry CV-9

Multi Sample Moisture Content  
Analyzer.

Need supplies? Go to [store.aqualab.com](http://store.aqualab.com)

# Water Activity Analysis



USA AquaLab Sales 509-332-2756  
USA AquaLab Customer Support 509-332-5601  
Service outside USA, contact your local distributor

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