# Palintest pool Cospa

Lumiso Pooltest 3 Pooltest 4 Pooltest 6 User Manual

Lumiso

Ch1(0-5)

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Pooitest



ZIINST61 V

## **Palintest Deliver:**

# Palintest pool Cospa



#### Swimmer safety

Safeguard pool users through effective disinfection and water balance control



### **Pool integrity**

Regular pool testing helps maintain your pool and protects the pool infrastructure



### Water balance

Maintain optimum water balance to avoid corrosion or scaling



### **Cost efficiency**

Optimise your pool treatment plan

Backed by over 100 years of research, our equipment has been designed to make testing simple and easy.

Our technology delivers reliable results, to drive confident water quality management, ensuring that we can all bathe and play safely.

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# 4 Getting Started

Thank you for choosing a Palintest Lumiso Photometer. Please take time to read and follow the advice in this manual. If this instrument is used in ways not specified, the protection it provides and its accuracy may be impaired.





This is the basic procedure for all tests. For specific test details please refer to the Test Instructions.



The test selection menu appears when first starting up Lumiso.

From most other screens, pressing "back" 🗲 once or twice, will take you back to the test selection menu.

Select a test, using the up and down keys a until the desired test is highlighted.



These tube icons in the set tube icons in the set of th

These indicate that the left key () is for "blanking" and the right key () is for "reading"

Please Note: The read icon only appears after the blanking stage has been completed. Lumiso will require blanking to be repeated after 50 minutes or if it registers a significant change in environmental temperature.



Blanking enables the instrument to set the correct zero value. This ensures the final result will be accurate, even when testing water that is cloudy or coloured.

4 Lumiso	
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Chl(0–10)	Press blank
Pooltest	



The screen will show that the blank is being measured.



If after blanking, you want to read a different parameter press the back key ← to go to the test menu. A different test can then be "Read" without needing to blank again.

Prepare a 10mL sample by adding reagents according to the test instructions. Place this sample tube in the cell holder.



Pooltest

Press read.	Ô
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Depending upon test selected, Lumiso will either go to step 9, or show intermediate steps 8a or 8b.

#### For Chlorine Tests Only



A choice of free or total chlorine is offered. See test instructions.

Highlight FChl and press read () to read and display free chlorine result. (see step 10)

Highlight TChI and press read it to display a preset timer which will automatically count down and then read the total chlorine result.

#### For Tests with a Wait Time Only





The screen will show that the sample is being measured.



Lumiso will display these messages as M numbers, if it detects unexpected readings when making its optical measurements

Message Number	Likely Cause	Suggested Action
M1 and M2	Blank is too dark	Check and clean all glass tubes used. Repeat blanking process
	Contamination obscuring optics	See "Keeping the Optics Clean"
M3 and M4	Blank, sample tube, or NDF standard moved or removed too early	Carefully repeat blanking and reading procedure
ME	Light cap not fitted correctly	Check or change light cap on tube
GIAI	External light entering the optical cell	Move instrument away from external light

A common cause that can trigger any of these messages to be displayed is contamination of the optical windows or stained glassware. See sections Keeping the Optics Clean and How to Get Accurate Results. If messages continue to be displayed, please contact your local Palintest branch or distributor.

## Keeping the Optics Clean

Contamination in the optical cell may effect the accuracy of readings and can trigger an information message to be displayed.

Clean optical windows gently with a soft, non-abrasive cloth dampened with water or anti-static foam cleaner. Do not use solvents.

Instrument failure due to contamination is not covered by warranty.



A number of additional functions and settings can be accessed from within the Settings Menu.





Use the key to scroll through the options. Press confirm to explore that option Press back to go back to the Test Selection Menu.

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$\mathbf{\overline{>}}$	<b>Check Standard Mode:</b> Verify instrument performance using NDF check standards
	Label Mode: Assign a label to your measurement
	<b>Log Mode:</b> Access the last 50 measurement results
■ R ■ % = K ■ K ■ K * * 3	<b>QR Log Mode:</b> Access a QR code that contains the current log.
	Date & Time Mode: Manually edit the date & time in the instrument. Date format can also be changed.
	<b>Brightness Control Mode:</b> Adjust the brightness of the screen backlight.

# 16 Using Check Standards

Check Standards can be purchased separately for your Lumiso instrument. These standards contain Neutral Density Filters (NDFs) and can be used to verify that the

instrument is within calibration and performing correctly.





# Why is Percentage Transmission of Light being measured with Lumiso Check Standards?

Lumiso works by measuring the amount of light that passes through the sample. This value is known as the "Percentage Transmission" or "%T". Lumiso's software then converts this %T value into a concentration, such as mg/L of chlorine. So, to verify that the instrument is within calibration it is only necessary to check that the instrument correctly measures %T for each wavelength of light it uses. This simplifies the process for using check standards.





The wavelengths of light the instrument uses are shown in nanometres (nm).

To ensure that all the test parameters on Lumiso are being measured correctly, use the standards to verify both of these wavelengths.

If nothing is shown here, it is because Lumiso has not been "blanked" on the wavelength highlighted.









The instrument will measure the blank and show when this has been successful.

A read icon now appears.



Insert Standard A from the set of standards

Ensure that the correct wavelength is aligned.

Then press read





The measurement of %T (Percentage Transmission) is shown on screen.

This value needs to be compared with that on the certificate for the correct wavelength and standard.

Please Note: The certificate shown here is for illustration only. Please refer to the certificate supplied with the set of standards.

			Pal	intest	Pool Xspa
	Lumiso	Check Stand	ard Cer	tificate	
Wave	length	Stand	ard A	Sta	ndard B
530	) nm	12.5 ±	2 %т	81.2	2±2 %T
575	5 nm	8.3 ±	2 %т	79.2	2±2 %T



Continue, by inserting Standard B, pressing read, and comparing the result with certificate.

Then repeat the entire process (blank, read A, read B) from step 2 onwards for the second wavelength.

Should any standards read outside the values shown on your certificate, the most likely cause is contamination on the optical windows in the cell holder. Please clean the cell holder carefully and remeasure the standards. (See 'Keeping the Optics Clean')

If this does not resolve the issue, please contact your local Palintest branch or distributor.

# 22 Accessing the Results Log

Lumiso stores the most recent 50 test results along with the test time, date and and sample label. The oldest test result will be automatically overwritten once this capacity is reached.



The Results Log is accessed from the Settings Menu {රු

Select the "Results Log" icon 🖹 and confirm 🗸



The screen will show the most recent result with its time and date.

Use the up and down keys () to scroll through up to 50 results.

This is a reminder that you are looking at a stored result in the log.



## Displaying a QR Code



It is possible to display the entire content of the Results Log as a QR code for scanning by other devices.

From the Settings Menu {රි

Select the QR code icon  $\mathbb{R}^{\mathbb{R}}$  and confirm  $\sqrt{}$ 

An alpha numeric, version 30, QR code will be displayed.

# 24 Changing Lumiso Settings

## Setting Time and Date

Changes to the instrument settings are accessed through the Settings Menu.





Three items are adjustable:

- Date Format
- Time (24 hour clock)
- Date

To make changes to the highlighted item, use the up and down key

Advances to the next item

Goes back to previous item

To exit without saving any changes press back ← from this first screen.



To save changes, advance  $\blacktriangleright$  until the tick  $\checkmark$  shows to confirm.

To exit without saving any changes keep pressing back

## Adjusting the Display Backlight

Lumiso's screen brightness is adjustable and there are five levels to choose from.





Use the up and down keys () to adjust the brightness of the screen as required.

Confirm  $\checkmark$  to save the new setting.

Press back ← to exit without making any changes.

## Using Sample Labels



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Sample readings can be tagged to indicate a sample name, project or sampling location.

In the settings menu  $\{ \stackrel{()}{\bigcirc} \}$  scroll to the tag icon and confirm  $\checkmark$ 



Use the up and down keys to highlight a name. Select confirm √ and that name will then be used to label all future measurements until it is changed. Press back ← to leave the current label name unchanged.

To set up a list of names, use the USB port to connect Lumiso to a PC and visit:

www.palintest.com/palintestconnect

# **Procedures for Testing**

## How to Get Accurate Results



Rinse all equipment thoroughly with the water that is being tested.



When filling tubes to the 10 mL line ensure the level is as shown



Use Palintest Photometer tablets. Rapid dissolving and Comparator tablets are not suitable.



During sample testing or blanking, remove any attached bubbles by capping the tube and rotating as shown.



Ensure tubes are dry on the outside before placing them in the instrument.



Ensure that your Lumiso Instrument is clean and dry.

Place tubes in the instrument with white diamond aligned to the mark on the instrument.



The blank is a sample of the water to be tested that sets the zero value on the instrument. This ensures that any colour or cloudiness in the sample does not affect the final result.

Blanking is required whenever a different pool or spa is being tested or if significant time has elapsed since the pool or spa was last tested.

In the test instructions, blanking is not described specifically. However, it is important that the photometer is blanked using the water that is being tested.

## Sample Dilution



If a result is above the range of the test a '>' symbol will appear in front of the result. In this case it will be necessary to dilute the sample with deionised water and repeat the test.

Important: It is not valid to test pH on diluted samples.



A dilution tube is available from Palintest to simplify this.

**Example for a x2 dilution:** Fill with sample to x2 line and top up to 100 mL with deionised water. Mix and use this as the new blank and sample for the test. Multiply result by x2. 30

Depending upon model, any of the following tests may be present in the menu.

Test Parameter	Menu Abbreviation	Range	Pooltest 3	Pooltest 4	Pooltest 6	Page
Chlorine (Free and Total)	Chl (0-5)	0 - 5 mg/L	•	•	•	31
Chlorine (Free and Total)	Chl (0-10)	0 - 10 mg/L	•	•	•	31
pH (Phenol Red)	рН	6.5 – 8.4 pH	•	•	•	35
Cyanuric Acid	СуА	0 - 150 mg/L	•		•	37
Total Alkalinity	ТА	0 - 500 mg/L		•	•	39
Calcium Hardness	СаН	0 - 500 mg/L			•	41
Calcium Hardness for Salt Pools	CaH Salt	0 - 500 mg/L			•	41
Bromine	Br	0 - 10 mg/L		•	•	43

#### Free and Total Chlorine - Chl(0-5) and Chl(0-10)

Colour Change:	Colourless to Pink
Two Ranges:	0 - 5 mg/L use DPD 1 and DPD 3 Tablet
	0 – 10 mg/L use DPD XF and DPD XT Tablet











#### pH (Phenol Red)

Colour Change:	Yellow to Red
Range:	6.5 – 8.4 pH





7.65 pH

Pooltest

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#### Take the **Photometer reading**.

#### Cyanuric Acid - CyA

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Colour Change:	Clear to Cloudy
Range:	0 - 150 mg/L CyA







Add one Cyanuric Acid tablet. DO NOT CRUSH.



(to let tablet disintegrate).

**Please Note:** Lumiso provides a timer for this which will not automatically read. This allows step 4 to be carried out before reading.



#### Total Alkalinity -TA

Colour Change:	Yellow to Green to Blue

**Range:** 0 – 500 mg/L CaCO<sub>3</sub>



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Replace cap and **wait 1 minute**.



#### Take the Photometer reading.

Please Note: Not crushing the tablet completely in step 3 will produce a layering of the colour in the tube. If this is observed re-mix the tube and read again.

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#### Calcium Hardness - CaH & CaH Salt

Colour Change: Range:

Violet to Orange 0 - 500 mg/L CaCO<sub>3</sub>



Fill tube with sample to the **10mL** line.



## 2

Add **one Calcicol No 1 tablet**, crush and mix.

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Add **one Calcicol No 2 tablet**, crush and mix.







#### Bromine - Br

Colour Change:	Colourless to Pink
Range:	0 – 10.0 mg/L Br <sub>2</sub>







# **Technical Specification**

Instrument	Dual wavelength, direct-reading colorimeter
Optics	Palintest dual LED light source optical system with narrow band wavelength filters and photodetectors
Wavelengths	Automatic wavelength selection of 530 nm or 575 nm
Wavelength Tolerance	± 2 nm
Filter Bandwidth	5 nm
LCD Display	226 x 138 pixel with adjustable backlight
Instrument Operating Conditions	0 – 50°C 90% Relative Humidity (non-condensing)
Waterproof Rating	IP67 (Waterproof)
Test Cells	25 mm diameter tubes
Blank/Zero setting	Held in memory, but to maintain test accuracy, instrument will prompt for re-blanking after 50 minutes or if environmental temperature has changed.
Power Supply	3 x 1.5V AA batteries USB Port 6V max, 200mA max (DC)
USB Port	Micro USB Type B
Size	163 x 70 x 45 mm
Weight	275g (including batteries)

# 46 Changing the Batteries

Please take care when changing the three AA/LR6 batteries in order to maintain the waterproof rating of the instrument.



To change the batteries, first disconnect the USB lead.

Then use a suitable screwdriver to loosen the captive screw



The watertight seal built into the battery cover means that a firm pulling force needs to be applied to remove it.

This is best done by gripping the sides of the cover, as shown, as close as possible to the end with the captive screw.

Please note: Levering the cover off with a screwdriver or sharp implement risks damaging the cover and seal.



The cover will lift and, if necessary, the captive screw can be further loosened so the cover can be removed completely.





The batteries are held firmly in place by the clips to enhance Lumiso's resilience to physical shock.

To remove the batteries, push them towards the negative contact and lift the positive end.



Insert new batteries in the same way, pushing towards the negative contact, but this time, down at the positive end.

Note the polarity guidance in the compartment.



Replace the cover, hinge end first.

Then firmly push the cover down until it is parallel to the case as below. This ensures that the waterproof seal is complete.





Secure the captive screw so that it gently holds the cover in place.

**Please Note:** Do not tighten the screw excessively. The level of torque applied to this screw has no affect on the performance of the waterproof seal.

Thank you for choosing your Palintest Lumiso Photometer. For any further questions or information on Lumiso consumables and accessories please visit **www.palintest.com** 





## A Halma company



www.palintest.com