

Palintest

Lumiso Ammonia

User Manual



Made in UK



Lumiso Ammonia

User Manual

Palintest

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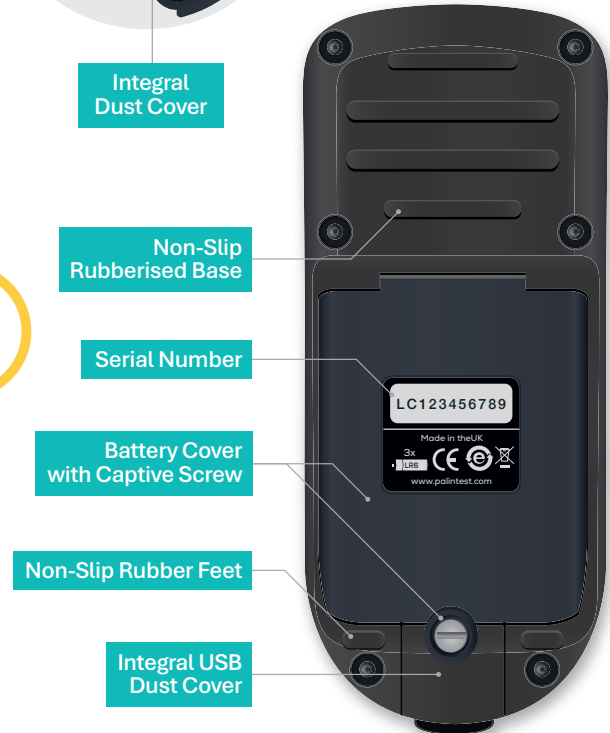
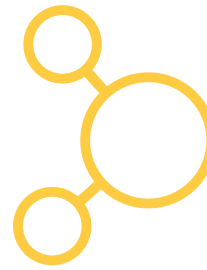
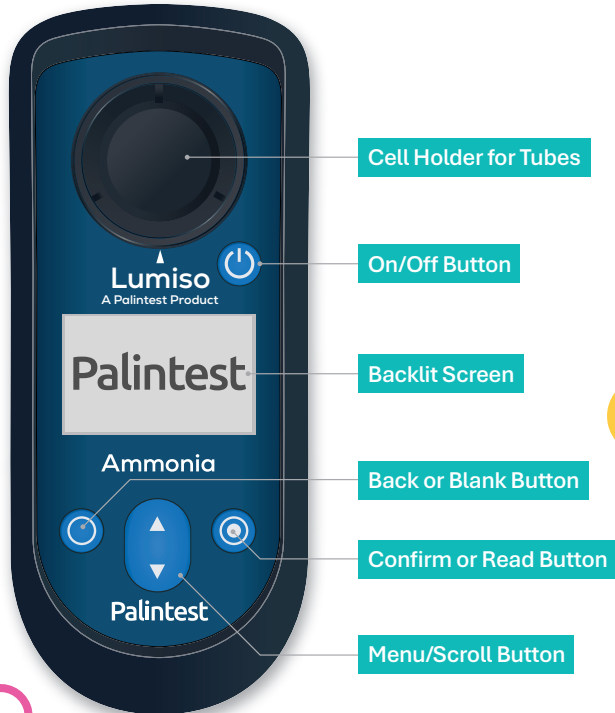
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Contents

Getting Started	4
Instrument Layout	4
How to Select and Perform a Test	6
Information Messages	12
Keeping the Optics Clean	13
The Settings Menu	14
Using Check Standards	16
Accessing the Results Log	22
Instrument Integration with Connect by Palintest	24
Instrument Registration and Warranty	25
Tagging test results with GPS coordinates	27
Uploading Test Results to Connect	30
Changing Lumiso Settings	32
Setting Time and Date	32
Adjusting the Display Backlight	33
Using Sample Tags	34
Procedures for Water Testing	35
How to get Accurate Results	35
Blanking	37
Sample Dilution	37
Test Instructions	38
Technical Specification	46
Changing the Batteries	47

Instrument layout

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.

1



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 ↑ ↓ until the desired test is highlighted.




2

These tube icons   will usually appear.

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.



Blank Read


Blanking sets the zero value for the test and is required on most occasions a test is carried out. Blanking is slightly different depending upon whether the test format is a tablet test or liquid Tubetest.

Ammonia Tablet Test

3a

Use a photometer tube with 10 mL of the water being tested without any reagent tablets added.

Place this in the cell holder.




Ammonia TUBETESTS®


3b

Place an unused tube in the cell holder fitted with the Tubetest Adapter.

Alternatively, if the water being tested is strongly coloured or cloudy, a blank can be prepared by adding the correct volume of sample to a tubetest and using it as the blank before any Nessler reagent or Indophenol Tablet is added.



4

Press blank 



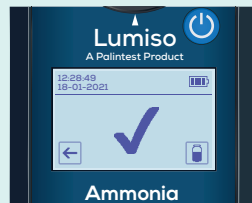
5


The screen will show that the blank is being measured.



6

This indicates that blanking was successful.



If after blanking, you want to read a different parameter press the back key  to go to the test menu. Providing the tube size is unchanged, Lumiso will allow a different test to be “Read” without needing to blank again.

Ammonia Tablet Test

7a

Prepare a 10ml sample by adding reagents to it according to the test instructions.

Place this sample tube in the cell holder.

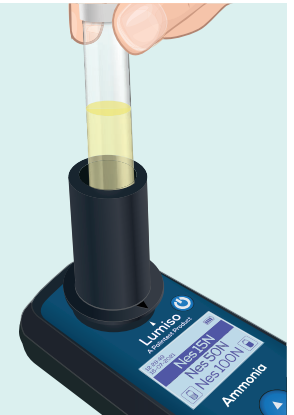


Ammonia TUBETESTS®


7b

Follow Test Instructions for type of tubetest being used.

Then place tube in cell holder fitted with adapter.



8

Press read 

Depending upon test selected, Lumiso will either go to step 10, or show intermediate step 9.



10

The screen will show that the sample is being measured.



For Tests with a Wait Time Only

9

For tests with a “wait time” (see test instructions), a preset timer will count down and then automatically commence reading.

Press read  to override.




11

The result will be displayed with the following information:

Time and Date

The Test Name from the Menu

The Measured Result

Press back  from this screen to go to the test selection menu.



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
M5	Light cap not fitted correctly	Check or change light cap on tube
	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.

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.


1

The Settings Menu is accessed from the opening Test Selection Menu.


Select  and confirm



2

Use the  key to scroll through the options.

Press confirm to explore that option.

Press back  to go back to the Test Selection Menu.



Check Standard Mode:

Verify instrument performance using NDF check standards.



Tag Mode:

Assign a tag to your measurement.



Log Mode:

Access the last 50 measurement results.



QR Log Mode:

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.



Brightness Control Mode:

Adjust the brightness of the screen backlight.



GPS:

Upload a single test result with GPS coordinates.



Device Registration:

Register device and activate warranty.

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?

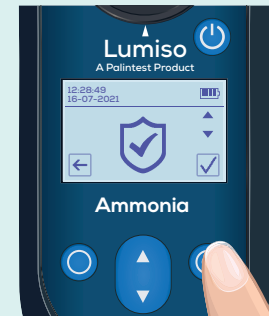
Lumiso works by measuring the amount of light that passes through the sample. This value is known as the "Percentage Transmission" or "%T". Lumiso's software then converts this %T value into a concentration, such as mg/L of chlorine.

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.

1

Check Standard Mode is accessed from the Settings Menu

Scroll to the Check Standard icon and confirm

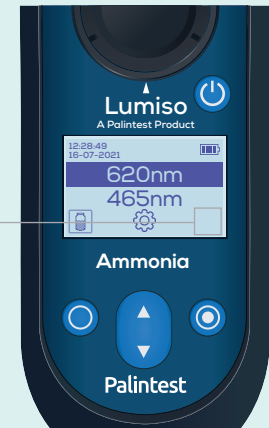


2

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

While some Lumiso instruments use more than one wavelength, the Chlorine, Chlorine Dioxide and Ozone instruments all use only this wavelength.

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



3

To set the blank (zero) value for the selected wavelength.

Insert the “Blank” from the set of standards.



5


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

A read icon now appears.



4

Ensure that the wavelength being checked is aligned with the mark on the Lumiso instrument.


Then press blank 

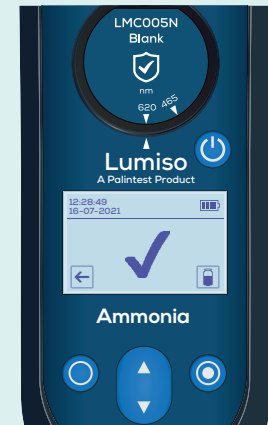


6

Insert Standard A from the set of standards.

Ensure that the correct wavelength is aligned.

Then press read 



7

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.



Check Standards Certificate

For use with instruments :

Lumiso Ammonia

	Wavelength 620 nm		Wavelength 465 nm	
	Min	Max	Min	Max
Standard A	69%T ↔ 74%T		69%T ↔ 74%T	
Standard B	24%T ↔ 28%T		24%T ↔ 28%T	

8

Continue, by inserting all the remaining standards, pressing read, and comparing the result with certificate.

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





Should any standard 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.

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

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

1


The Results Log is accessed from the Settings Menu 

Select the "Results Log" icon  and confirm



2

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.



3

The log of results can be downloaded as a text file via the USB port.

Alternatively, use the QR code function (see Instrument Integration with Connect by Palintest section).



Connect by Palintest is a **cloud-based platform** for managing water quality data and instruments. It allows you to register devices, upload results, and maintain calibration records.

Your instrument uses **three QR code icons**:



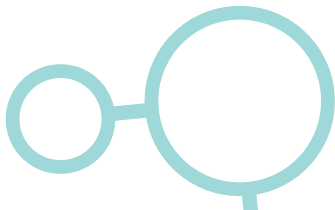
Icon 1:
Register device and activate warranty.



Icon 2:
Upload a single test result with GPS coordinates.



Icon 3:
Upload the last 25 test results.



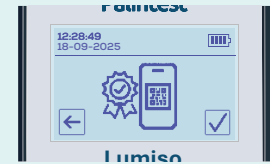
Register your instrument to activate the first-year warranty. Warranty extends to two years after annual service.

The instrument records the date of the first test as the warranty start date.

Tip: Registration ensures access to calibration certificates and service reminders.

1

From the Settings Menu, scroll to the Device Registration icon.



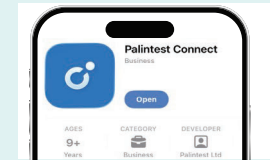
2

Press confirm
A QR code will appear on screen.



3

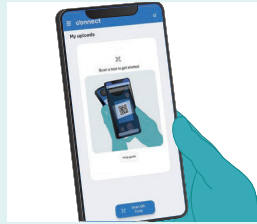
Open the **Connect by Palintest** app on your phone (available on Android and iOS).





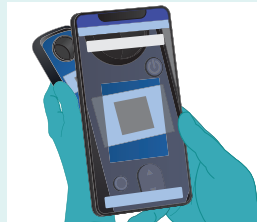
4

Log in or create an account.
Select **Scan QR Code** in the app.



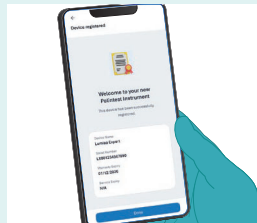
5

Hold the instrument QR code in front of your phone camera and scan.



6

A success message will display with your instrument service number and warranty date.



Visit www.palintestconnect.com to view your calibration certificate and manage service schedules.

Individual test results can be uploaded to Connect along with GPS coordinates.

The GPS location is captured by your phone when scanning the QR code. This ensures accurate geotagging for compliance and traceability.

Important: This uses a **time-limited QR code**, valid for 60 seconds. After this time, the test must be repeated. This ensures data integrity, so the GPS coordinates match the actual test location.

Tip: Have the Connect app ready before starting the test to avoid QR code expiry.

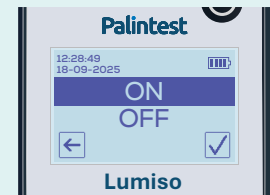
1

From the Settings Menu, scroll to Geotagging Results icon.



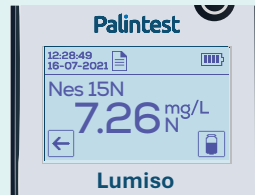
2

Press confirm and toggle to select ON.



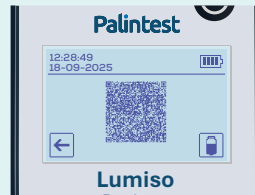
3

Perform the test and take the photometer reading.



4

The display alternates between the numeric result and a time-limited QR code.



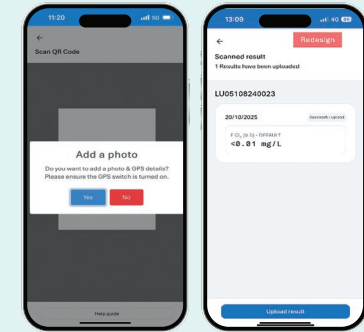
5

Log in to the mobile app and scan the QR code.



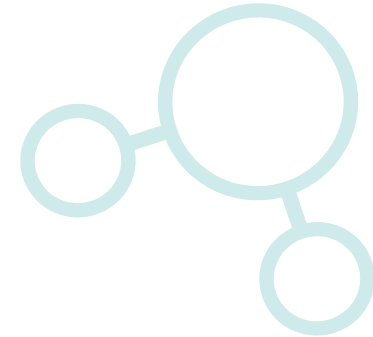
6

Add optional site photos for better traceability.



Note: Add a data tag for automatic data hierarchy on Connect; otherwise, results go to DEFAULT.




Visit www.palintestconnect.com for instant access to your water quality data.

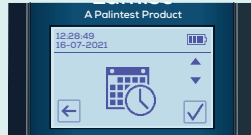


Setting Time and Date

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

1


From the Settings Menu 
Scroll to the Time and Date
icon  and confirm 






2

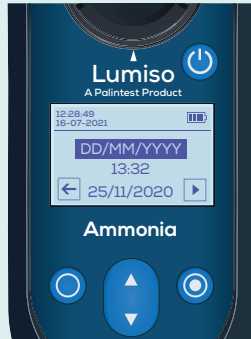
Three items are adjustable:

- 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

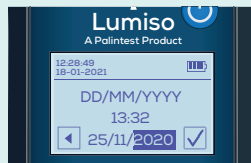
To exit without saving any changes press back  from this first screen.



3

To save changes, advance  until the tick  shows to confirm.




To exit without saving any changes keep pressing back 

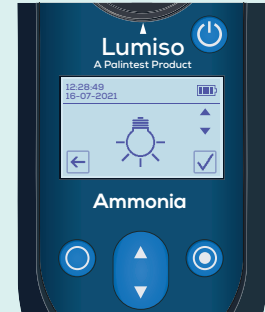


Adjusting the Display Backlight


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


1


From the Settings Menu 
Select the light bulb icon 
and confirm 

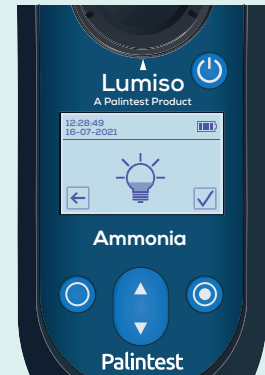


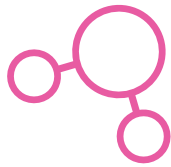
2

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

Confirm  to save the new setting.

Press back  to exit without making any changes.







Using Sample Tags

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


1

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


In the settings menu  scroll to the tag icon  and confirm

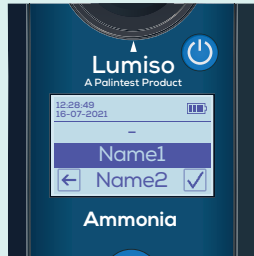


2

Use the up and down keys  to highlight a name.

Select confirm and that name will then be used to tag all future measurements until it is changed.

Press back  to leave the current tag name unchanged.



3



To set up a list of names, use the USB port to connect Lumiso to a PC and visit: www.palintest.com/palintestconnect

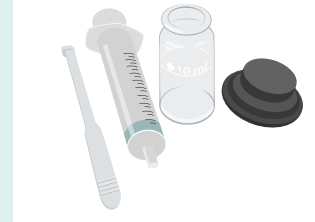


Procedures for Testing

How to Get Accurate Results

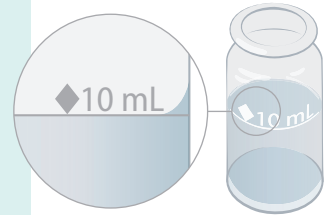
1

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



2

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



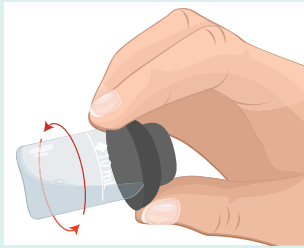
3

Use Palintest Tubetests or photometer reagents.



4

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



5

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



6

Ensure that your Lumiso Instrument is clean and dry.

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



Blanking

Blanking is slightly different depending upon whether the test format is a tablet test or liquid Tubetest. See "How to Select and Perform a Test".

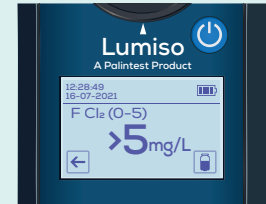
Blanking is not specifically mentioned in each test method but it is important that the instrument has been correctly "blanked" each time a test is carried out.

Sample Dilution

1

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.



2

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.



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

Name on Menu	Test Method	Reagent System	Range	Page
Nes 15N	Nessler	Liquid Tubetest (Ammonia/15N)	0.1–15 mg/L N	39
Nes 50N	Nessler	Liquid Tubetest (Ammonia/50N)	0.7–50 mg/L N	39
Nes 100N	Nessler	Liquid Tubetest (Ammonia/100N)	1.0–100 mg/L N	39
Ind 1N	Indophenol	Tablet (Ammonia AP152)	0.03–1 mg/L N	44
Ind 12N	Indophenol	Liquid Tubetest (Ammonia/12/50N)	0.2–12 mg/L N	41
Ind 50N	Indophenol		0.7–50 mg/L N	41

All ammonia concentrations reported by Lumiso are in mg/L N
 To convert to mg/L NH_4 multiply by 1.3
 To convert to mg/L NH_3 multiply by 1.2

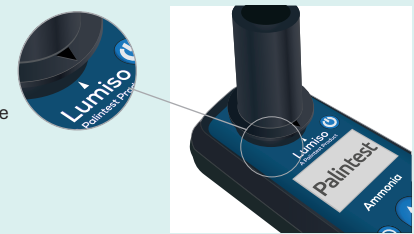
Ammonia (Nessler Tubetest Methods)

Name on Menu	Range	Sample Volume Used
Nes 15N	0.1–15 mg/L N	5 mL
Nes 50N	0.7–50 mg/L N	1 mL
Nes 100N	1.0–100 mg/L N	0.5 mL

Color Change: Colourless to yellow to orange

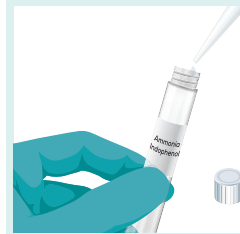
1

Tubetests require use of adapter



Please see section **How to Select and Perform a Test** for details of Tubetests **Blanking**.

2



Remove Cap from Tubetest and add:
5 mL of sample for Ammonia **15N**
 or **1 mL** of sample for Ammonia **50N**
 or **0.5 mL** of sample for Ammonia **100N**

3

Add **12 Drops** of Nessler's Reagent.




4

Replace cap securely and invert several times to mix.



5

Wait 1 minute.
Alternatively, to use the automatic timer, immediately place tube in the cell holder then press read 



6

Take the Photometer Reading.
Result = mg/L Ammonia (as N).



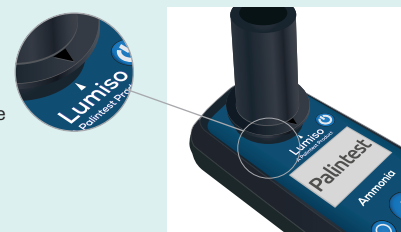
Ammonia (Indophenol Tubetest Methods)

Name on Menu	Range	Sample Volume Used
Ind 12N	0.2–12 mg/L N	1 mL
Ind 50N	0.7–50 mg/L N	0.2 mL

Color Change: Colourless to yellow to green

1

Tubetests require use of adapter



Please see section **How to Select and Perform a Test** for details of Tubetests **Blanking**.

2



Remove Cap from Tubetest and add:
1.0 mL of sample for Ammonia range 0-12 mg/L (**12N**)
or 0.2 mL of sample for Ammonia (0-50mg/L) (**50N**)
Swirl tube to mix



3

Add one Tubetests
Ammonia (Indophenol) Tablet.




4

Crush tablet and mix.
Then replace cap.



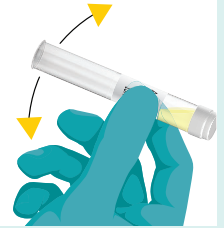
5

Wait exactly 10 minutes.
Alternatively, to use the
automatic timer, immediately
place tube in the cell holder
then press read 



6

Just prior to reading, invert tube
once. (If tube is in cell holder
then entire instrument can be
inverted gently and returned to
its normal position, just before
the timer elapses).



7

Take the Photometer Reading.
Result = mg/L Ammonia (as N).



Please Note:

The 10 minute waiting time needs to be measured precisely.
Ignore colour change after this time.

Colour development time is temperature dependant and based
on 20° C. Both Tubetests and sample should be as close to
this as possible.

Indophenol Tubetests are sensitive to light, always keep the
lid closed.

Ammonia (Tablet Method) Ind 1N**Colour Change:** Colourless to yellow to green**Range:** 0.03–1 mg/L N**1**

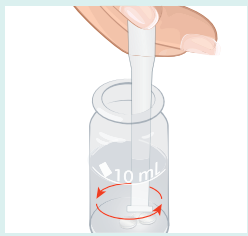
Fill tube with sample to the **10mL** line.


**2**

Add **one Ammonia No 1** tablet and **one Ammonia No 2** tablet

**3**

Crush both tablets and stir to mix.

**4****Wait 10 minutes.**

Alternatively, to use the automatic timer, immediately place tube in the cell holder then press read 

5**Take the Photometer Reading.****Result = mg/L Ammonia (as N).****Seawater Samples**

Turbidity will form when testing seawater and invalidate the result.

Conditioning Reagent is available in a special pack with built in measuring spoon. Add 1 spoonful of this powder to the 10mL sample, and mix, prior to adding the two tablets. If turbidity still appears repeat the test using 2 spoonfuls of conditioning reagent.



Instrument	Single wavelength, direct-reading colorimeter
Optics	Palintest dual LED light source optical system with narrow band wavelength filters and photodetectors
Wavelengths	Automatic wavelength selection of 620 nm and 465 nm
Wavelength Tolerance	± 2 nm
Filter Bandwidth	5 nm
LCD Display	226 x 138 pixel with adjustable backlight
Results Log	50 results, with date, time and tag
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 C
Size	163 x 70 x 45 mm
Weight	275g (including batteries)

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

1

To change the batteries, first disconnect the USB lead.

Then use a suitable screwdriver to loosen the captive screw



2

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

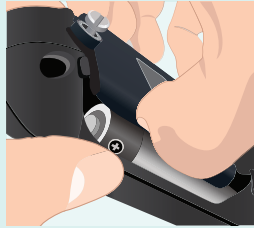
This is best done by gripping the sides of the cover, as shown, as close as possible to the end with the captive screw.

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



3

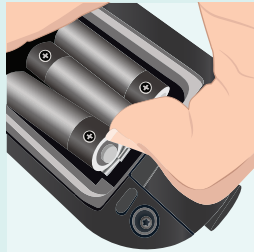
The cover will lift and, if necessary, the captive screw can be further loosened so the cover can be removed completely.



4

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.



5

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

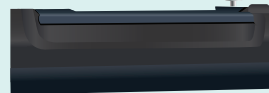
Note the polarity guidance in the compartment.



6

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.



7

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 effect 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

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