

# Photometer AL400

**Modern, mobile photometer  
for rapid, reliable water testing**



With the modern design of the AL400 we have succeeded in combining the mobility of a portable photometer with the characteristics of a modern laboratory photometer.

This new unit covers all the important parameters of water analysis, from aluminium to zinc. The high level of accuracy of AQUALYTIC® reagents and the user-friendly nature of the instrument guarantee rapid and reliable analysis of your water samples. Depending on the application, the unit will operate with tablet reagents, powder packs, liquid reagents or tube tests (16 / 13 mm).

The AL400 operates with 6 interference filters and uses long-life LEDs as a light-source. No moving parts are involved.

The illuminated display allows comfortably reading of the measurement results even in low light conditions.

Of course, the AL400 has a memory, in which up to 1000 data sets can be stored. The infra-red interface\* enables data to be transmitted to a computer or printer (RS 232 / USB).

\* available as an option : IRIM (infra-red interface module)

20

## Highlights

- Automatic wavelength selection
- Easy handling
- Backlit Display
- User interface in German, English, French, Spanish, Italian, Portuguese (BR), Polish & Indonesian
- Storage
- More than 120 methods
- 35 user defined methods
- Infrared interface
- Waterproof<sup>\*)</sup>
- Mobile

<sup>\*)</sup> as defined in IP 68, 1 hour at 0.1 meter

## N.I.S.T. Traceability

The instrument has a factory calibration, which is related to internal standards, which are not N.I.S.T traceable. The instrument may be calibrated by the user in a "user calibration mode" with N.I.S.T traceable standards.

(N.I.S.T. = National Institute of Standards and Technology)

## New methods

Test methods are regularly updated to suit market requirements. You can find software updates for new methods and additional languages on our website at [www.aqualytic.de](http://www.aqualytic.de).

## Polynomials

With the help of an external mathematical program, the corresponding polynomial is created from data pairs (concentration/absorption). A known polynomial may also be used. 25 order polynomials ( $y = A+Bx+Cx^2 + Dx^3 + Ex^4 + Fx^5$ ) can be stored together with user-specific parameters such as wavelength, measuring range, unit and number of decimals.

## Concentration

This function can be used to measure 2 to 14 known standards. On the basis of the concentrations/absorption pairs obtained, the photometer will calculate a linear interpolation between the measured points. Up to 10 methods can be stored for further sample measurements.

## Delivery Content

The instrument is supplied complete and ready-to-use incl. 4 batteries, 3 vials ø 24 mm, 3 vials ø 16 mm, 1 adapter each for 16 mm and 13 mm vials, stirring rod 13 cm, brush 11 cm, screw driver, warranty information, certificate of compliance, instruction manual, carrying case with water resistance foam, **but without reagents**.

**Order code: 4214020**

Please specify the reagents or parameters required at time of order.

You can find updated information on parameters and measuring ranges on our website at [www.aqualytic.de](http://www.aqualytic.de)

➔ **Reagents (order codes), please see pages 34 onwards**



## Applications

- Waste Water
- Drinking Water
- Industrial Process Water
- Scientific & Research
- Governmental and Private Laboratories
- Mobile Application

# Photometer AL400


## Technical Data

<b>Display</b>	Graphic-display
<b>Interfaces</b>	Infrared interface for test data transfer <sup>1</sup> , RJ45 socket for Internet updates <sup>2</sup>
<b>Optics</b>	LEDs, interference filters (IF) and photo sensor in transparent sample chamber Wavelength range: 1 = 530 nm IF $\Delta\lambda = 5$ nm 2 = 560 nm IF $\Delta\lambda = 5$ nm 3 = 610 nm IF $\Delta\lambda = 6$ nm 4 = 430 nm IF $\Delta\lambda = 5$ nm 5 = 580 nm IF $\Delta\lambda = 5$ nm 6 = 660 nm IF $\Delta\lambda = 5$ nm IF = interference filter
<b>Wavelength Accuracy</b>	$\pm 1$ nm
<b>Photometric Accuracy*</b>	2% FS (T = 20°C – 25°C)
<b>Photometric Resolution</b>	0,005 A
<b>Operation</b>	Acid and solvent resistant, touch-sensitive keypad with audible feedback via integrated beeper
<b>Power Supply</b>	4 batteries (Mignon AA/LR6); Operation time: approx. 26 h continuous operation or 3500 tests
<b>Auto-Off</b>	approx. 20 minutes after last keypress with audible signal
<b>Dimensions</b>	approx. 210 x 95 x 45 mm (unit) approx. 395 x 295 x 106 mm (case)
<b>Weight (unit)</b>	approx. 450 g
<b>Ambient Conditions</b>	5–40°C bei max. 30–90% rel. Feuchtigkeit (nicht kondensierend)
<b>Language Selection</b>	German, English, French, Spanish, Italian, Portuguese, Polish, Indonesian; additional languages via Internet update
<b>Memory Capacity</b>	approx. 1000 data sets
<b>Approval</b>	CE

<sup>1</sup> optional available: IRIM (Infrarot Interface Modul)

<sup>2</sup> optional available: connection cable with integrated electronics  
(RS 232 / RJ-45-Buchse)

\* tested with standard solutions

 **Reagents (order codes),**  
please see pages 34 onwards



## Accessories

Item	Code
Set of 12 round vials with lid Height 48 mm, Ø 24 mm	197620
Set of 10 round vials with lid Height 90 mm, Ø 16 mm	197665
Adapter for round vials Ø 16 mm	19802220
Adapter for round vials Ø 13 mm	19802221
Set of <b>multy vials-3</b> with lids path length 10 mm, 10 ml volume Height 48 mm, Ø 24 mm (12 pc.)	197605
Vial stand for 6 round vials Ø 24 mm, acrylic glass	418951
Vial stand for 10 vials (Ø 16 mm or □ 13,5 mm), acrylic glass	418957
Sealing ring for vial Ø 24 mm (12 pc.)	197626
Battery, 1.5 V, AA-Alkali-Mangan (4 pc.)	1950025
Cleaning cloth for vials	197635
Plastic funnel with handle	471007
Plastic stirring rod, 13 cm length	364100
Plastic stirring rod, 13 cm length, (10 pc.)	364120
Plastic stirring rod, 10 cm length	364109
Plastic stirring rod, 10 cm length, (10 pc.)	364130
Cleaning brush, 10 cm	380230
Verification Standard Kit	4215640
Cable for update for connection to a PC	4214030
Infra-red data transmission modul IRIM	4214050

### Verification Standard Kit

The Verification standard kit for the AL400 is designed to reassure the user about the accuracy and the reliability of the results.

The shelf life of the Verification standard kit is two years from the date of production, provided that storage and use are in accordance with the instructions provided. Measurements are taken in mAbs.

### Verification Standard Kit

4215640



## Infra-red data transmission modul IRiM



The IRiM (infra-red interface modul) uses modern infra-red technology to transmit measurement data from the AL400 photometer to one of 3 optional interfaces. These interfaces can be used to connect to a PC, a USB printer<sup>1)</sup> or alternative a serial printer<sup>2)</sup>. The interface which is selected is displayed by an LED function indicator. The user can switch between the interfaces using the „Select“ button.

The unit is supplied complete with data logging software providing easy and rapid transfer of data to the PC. As an option the data can be saved as an Excel sheet or a .txt file.

Measurement data can quickly be printed out, using a specified<sup>1)</sup> USB or alternative a printer with a serial plug-in connected to the IRiM.

Applicable for the following operating systems:  
Windows XP, Windows Vista and Windows 7.

<sup>1)</sup> USB printer: HP Deskjet 6940 ; <sup>2)</sup> each ASCII printer

### Delivery content

The IRiM is delivered ready for use, with the following accessories :

USB cable, 4 batteries, screwdriver, CD-ROM, operating instructions and guarantee certificate

**Order code: 4214050**

### Technical Data

<b>System requirements</b>	Processor: Pentium 4/M or equivalent RAM: 512 MB Screen resolution: 1280 x 1024 pixels Operating system: Windows XP Disc space: 90 MB
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<b>Interfaces</b>	SUB-D9 port USB-A port USB-B port
<b>Baud rate RS232 interface</b>	1200 ; 2400 ; 4800 ; 9600 19200 ; 38400 ; 57600
<b>Protocol RS232 interface</b>	XON/XOFF RTS/CTS ; XON/XOFF & RTS/CTS DTR/DSR ; XON / XOFF & DTR/DSR
<b>Dimensions</b>	132 x 95 x 43 mm (L x W x H)
<b>Weight</b>	315 g incl. 4 AA cells
<b>Batteries</b>	4 x AA cells