Photometer AL400 & AL410

Modern, mobile photometers for rapid, reliable water testing

The AL410 and AL400 give you mobile devices in a modern design with the analytical features of laboratory photometers.

All important water analysis parameters from A(luminium) to Z(inc) are covered by these two devices. Combined with the high precision of AQUALYTIC® reagents, a reliable and quick analysis of water samples is guaranteed. Reagent tablets, powder reagents, liquid reagents, or cuvette tests are used depending on the method.

Six long-lasting LEDs serving as a light source in combination with interference filters guarantee the highest precision. The devices are designed without moving optical parts and thus have a maintenance-free measuring unit. Up to 1,000 data records can be stored in both the AL410 and the AL400.

The **AquaLX®** app, available free of charge, offers the possibility of transferring measurements to smart phones or tablets via **Bluetooth®**. The data management then enables analysis and export as a CSV file or graph via email. The app is available free of charge for Android™ and iOS®.

The proven AL400 photometer uses the classic infrared interface with which data can be transferred by means of the IRiM module to the PC or laptop.

Highlights

- Highest/reproducible precision with interference filter
- Display with background lighting
- More than 120 pre-programmed methods
- Automatic selection of wavelength
- User guidance in German, English, French, Spanish, Italian, Portuguese (BR), Polish, and Indonesian.
- Buffer for up to 1000 data records
- More than 35 user-specific methods possible
- Bluetooth® interface for connection to smart phones and tablets (only with AL410)
- iOS® and Android™ app for data management and email delivery (only with AL410)
- Infrared interface (only with AL400)
- Waterproof housing*
- Handheld format, portable

*) 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.

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 codes
AL400: 4214020
AL410: 4214025

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

Reagents (order codes), please see pages 34 onwards

Applications

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

Bluetooth® is a wireless technology subject to regional approval. The use of the AL410 with Bluetooth® is currently only permitted within the EU, the USA, and in Canada. The use of the AL410 will also be possible in other regions in the future. For current regions and further information, visit: www.aqualytic.de/bluetooth
Regions in which the AL410 with Bluetooth® can currently be used (status: 01/2015):
within the EU (according R&TTE Directive 1999/5/EC) ; USA (according to FCC part 15, comprised in FCC ID QOQBT113) ; Canada (comprised in IC 5123A-BGTBLE113)

Photometer AL400 & AL410

Technical Data

Display	Graphic-display
Interfaces	Infrared[1] (AL400), Bluetooth® 4.0 (AL410) RJ45 socket for Internet updates[2]
Optics	LEDs, interference filters (IF) and photo sensor in transparent sample chamber Wavelength range: 1 = 530 nm IF Δλ = 5 nm 2 = 560 nm IF Δλ = 5 nm 3 = 610 nm IF Δλ = 6 nm 4 = 430 nm IF Δλ = 5 nm 5 = 580 nm IF Δλ = 5 nm 6 = 660 nm IF Δλ = 5 nm IF = interference filter
Wavelength Accuracy	± 1 nm
Photometric Accuracy*	2% FS (T = 20°C – 25°C)
Photometric Resolution	0,005 A
Operation	Acid and solvent resistant, touch-sensitive keypad with audible feedback via integrated beeper
Power Supply	4 batteries (Mignon AA/LR6); Operation time: approx. 26 h continuous operation or 3500 tests
Auto-Off	approx. 20 minutes after last keypress with audible signal
Dimensions	approx. 210 x 95 x 45 mm (unit) approx. 395 x 295 x 106 mm (case)
Weight (unit)	approx. 450 g
Ambient Conditions	5–40°C at max. 30–90% rel. humidity (non condensing)
Language Selection	German, English, French, Spanish, Italian,Portuguese, Polish, Indonesian; additional languages via Internet update
Memory Capacity	approx. 1000 data sets
Approval	CE

[1] optional available: IRiM (Infrarot Interface Modul)
[2] 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 **multy vials-3** 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[1)] or alternative a serial printer[2)]. 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[1)] 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.

[1)] USB printer: HP Deskjet 6940 ; 2) 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

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

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