Photometer AL100

Precise Water Analysis in High-Quality Design

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The AL100 uses high quality interference filters with long-life LEDs as a light source without any moving parts in a transparency sample chamber.

The units supply accurate, reproducible results very quickly. Other major advantages include ease of operation, ergonomic design, compact dimensions and safe handling.

The calibration and software-based adjustment options mean that the AL100 is also suitable for use as a testing instrument.

The tests are conducted using either AQUALYTIC tablet reagents with long-term stability and a guaranteed minimum 5 or 10 year shelf life, VARIO powder reagents or using liquid reagents.

Scroll Memory (SM)

To avoid unnecessary scrolling for the required test method, the instrument memorizes the last method used before switching off the instrument. When the instrument is switched on again, the scroll list comes up with the last used test method first.

Zero Setting (OTZ)

For certain versions of the instrument it is not necessary to zero the instrument each time. The zero setting is held in memory (**O**ne **T**ime **Z**ero - **OTZ**). The zero setting can be confirmed whenever it is usefull.

Manufacturers Test Certificate M

Besides the "Certificate of Compliance" which is supplied with the AL100, manufacturers test certificates M are available at cost on request. Manufacturers test certificates M are individually supplied per instrument and per method.

The manufacturers test certificate M has to be ordered together with the new instrument and cannot be delivered at a later stage.

N.I.S.T Traceability

The instrument has a factory calibration, which is related to international 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)

Highlights

- Drift-free results through high quality interference filter
- Scroll Memory
- Automatic Switch-Off
- Real-Time-Clock and Date
- Calibration Mode
- Backlit Display
- Storage Function
- One Time Zero (OTZ)
- Waterproof *)

*) as defined in IP 68, 1 hour at 0.1 meter

Reagents (order codes),
please see pages 40 onwards

Single-Parameter

Test	Code
Aluminium, tablet reagents 0.01 - 0.3 mg/l Al	4276200
Aluminium, powder reagents 0.01 - 0.25 mg/l Al	4276205
Ammonia, tablet reagents 0.02 - 1.0 mg/l N	4276060
Ammonium, powder reagents 0.01 - 0.8 mg/l N	4276065
Chloride, tablet reagents 0.5 - 25 mg/l Cl^- 5 - 250 mg/l Cl^- (by dilution)	4276180
Chlorine, tablet reagents **(OTZ)** 0.01 - 6.0 mg/l Cl_2 / 0.1 - 10 mg/l Cl_2*	4276000
Chlorine, liquid reagents **(OTZ)** 0.02 - 4 mg/l Cl_2	4276005
Chlorine DUO, for 2 types of reagents 1) Tablet reagents 0.01 - 6.0 mg/l Cl_2 / 0,1 - 10 mg/l Cl_2* 2) Powder reagents 0.02 - 2.0 mg/l Cl_2 (ø 24 mm glass cuvette) 0.1 - 8.0 mg/l Cl_2 (ø 10 mm **multi cuvette-2**)	4276020 4276025
Chlorine, powder reagents 0.02 - 2.0 mg/l Cl_2 (ø 24 mm glass cuvette) 0.1 - 8.0 mg/l Cl_2 (ø 10 mm **multi cuvette-2**)	4276010
Chlorine HR (Potassium iodide), tablet reagents 5 - 200 mg/l Cl2 (ø 16 mm round cuvette & adapter)	4276170
Chlorine dioxide, tablet reagents 0.02 - 11 mg/l ClO_2	4276030
Chlorine dioxide, powder reagents 0.04 - 3.8 mg/l ClO_2	4276035
COD, tube tests (ø 16 mm) soon available! 3 - 150 mg/l O_2 / 20 - 1500 mg/l O_2 / 200 - 15000 mg/l O_2	4276120
Copper, tablet reagents 0.05 - 5.0 mg/l Cu	4276080
Copper, powder reagents 0.05 - 5.0 mg/l Cu	4276085
Fluoride, without reagents 0.05 - 2.0 mg/l F^-	4276090
Hardness, total, tablet reagents 2 - 50 mg/l $CaCO_3$ / 20 - 500 mg/l $CaCO_3$ (by dilution)	4276190
Hazen, no reagents required 0 - 500 mg/l Pt-Co	4276160
Iron, tablet reagents 0.02 - 1.0 mg/l Fe	4276050
Iron TPTZ, powder reagents 0.02 - 1.8 mg/l Fe	4276055
Iron, powder reagents 0.02 - 3.0 mg/l Fe	4276056
Manganese LR, tablet reagents 0.2 - 4.0 mg/l Mn	4276100
Manganese LR, powder reagents 0.01 - 0.7 mg/l Mn	4276105
Manganese HR, powder reagents 0.1 - 18 mg/l Mn	4276106
Molybdenum LR, powder reagents / reagent solution 0.03 - 3.0 mg/l Mo (mixing cylinder required, not included)	4276140
Molybdenum HR, powder reagents 0.3 - 40 mg/l Mo	4276141
Molybdenum, tablet reagents 0.6 - 30 mg/l Mo	4276142
Phosphate, tablet reagents 0.05 - 4.0 mg/l PO_4	4276040
Phosphate, powder reagents 0.06 - 2.5 mg/l PO_4	4276045
Silica, tablet reagents 0.05 - 4.0 mg/l SiO_2	4276110
Silica LR, powder reagents 0.1 - 1.6 mg/l SiO_2	4276115
Silica HR, powder reagents 1 - 90 mg/l SiO_2	4276116

Single-Parameter

Test	Code
Suspended solids, no reagents required 0 - 750 mg/l TSS	4276150
Urea, tablet reagents 0.1 - 2.5 mg/l Urea, 0.2 - 5 mg/l Urea (by dilution)	4276210

2in1

Test	Code
Chlorine, pH, tablet reagents **(OTZ)** 0.01 - 6.0 mg/l Cl_2 / 0,1 - 10 mg/l Cl_2* ; 6.5 - 8.4 pH	4278020
Chlorine, pH, liquid reagent **(OTZ)** 0.02 - 4 mg/l Cl_2 / 6.5 - 8.4 pH	4278025
Chlorine, pH, powder reagents for chlorine 0.02 - 2.0 mg/l Cl_2 (ø 24 mm glass cuvette) 0.1 - 8.0 mg/l Cl_2 (ø 10 mm **multi cuvette-2**) ; 6.5 - 8.4 pH	4278030

3in1

Test	Code
Chlorine, pH, Cyanuric acid, tablet reagents **(OTZ)** 0.01 - 6.0 mg/l Cl_2 / 0,1 - 10 mg/l Cl_2* 6.5 - 8.4 pH ; 0 - 160 mg/l Cyanuric acid	4278010
Chlorine, pH, Cyanuric acid liquid reagent for chlorine and pH **(OTZ)** 0.02 - 4 mg/l Cl_2 / 6.5 - 8.4 pH / 0 - 160 mg/l cyanuric acid	4278015
Chlorine, pH, Alkalinity-M, tablet reagents **(OTZ)** 0.01 - 6.0 mg/l Cl_2 / 0,1 - 10 mg/l Cl_2* 6.5 - 8.4 pH ; 5 - 200 mg/l $CaCO_3$ (TA)	4278060
Chlorine, pH, Alkalinity-M liquid reagent for chlorine and pH (OTZ) 0.02 - 4 mg/l Cl_2 / 6.5 - 8.4 pH / 5 - 200 mg/l $CaCO_3$ (TA)	4278065
Chlorine LR, Chlorine HR, **Chlorine dioxide#**, tablet reagents 0.01 - 6.0 mg/l Cl_2,, 5 - 200 mg/l Cl_2 (ø 16 mm round cuvette) 0.02 - 11 mg/l ClO_2	4278000

4in1

Test	Code
Chlorine, pH, Cyanuric acid, Alkalinity-M tablet reagents **(OTZ)** 0.02 - 6.0 mg/l Cl_2 / 0,1 - 10 mg/l Cl_2* ; 6.5 - 8.4 pH 0 - 160 mg/l cyanuric acid ; 5 - 200 mg/l $CaCO_3$ (TA)	4278070
Chlorine, pH, Cyanuric acid, Alkalinity-M liquid reagent for chlorine and pH (OTZ) 0.02 - 4 mg/l Cl_2 / 6.5 - 8.4 pH 0 - 160 mg/l cyanuric acid / 5 - 200 mg/l $CaCO_3$ (TA)	4278075
Chlorine Duo, Chlorine HR, **pH, Alkalinity-M, Calcium hardness** powder reagents and tablet reagents for Chlorine tablet reagents for pH, Alkalinity-M, Calcium hardness without reagents for Chlorine HR, Chlorine T 0,01 - 6,0 mg/l, Chlorine PP 0,02 - 3,5 mg/l,, Chlorine HR 5 - 200 mg/l, pH 6,5 - 8,4,, Alkalinity-M 5 - 200 mg/l,Calcium hardness 20 - 500 mg/l new!	427 81 60

5in1

Test	Code
Chlorine, pH, Cyanuric acid, Alkalinity-M, **Calcium hardness**, tablet reagents **(OTZ)** 0.02 - 6.0 mg/l Cl_2 / 0,1 - 10 mg/l Cl_2* ; 6.5 - 8.4 pH ; 0 - 160 mg/l Cyanursäure 5 - 200 mg/l $CaCO_3$ (TA) ; 0 - 500 mg/l $CaCO_3$ (CaH)	4278080

6in1

Test	Code
Chlorine, Bromine, pH, Cyanuric acid, **Alkalinity-M, Calcium hardness** tablet reagents **(OTZ)** 0.02 - 6.0 mg/l Cl_2 / 0,1 - 10 mg/l Cl_2* ; 0.05 - 13 mg/l Br 6.5 - 8.4 pH ; 0 - 160 mg/l Cyanursäure 5 - 200 mg/l $CaCO_3$ (TA) ; 0 - 500 mg/l $CaCO_3$ (CaH)	4278090

AL100 Boiler Water (without reagents)

	Code
Aluminium, Chloride, Copper, DEHA, Hydrazine, Iron, Oxygen (dissolved), Phosphate, Polyacrylates, Silica	4276230

AL100 Cooling Water (without reagents)

	Code
Aluminium, Bromine, Chlorine, Chlorine HR, Chlorine dioxide, Copper, Iron, Molybdate LR, Molybdate HR, Ozone, Polyacrylates, Sulphate, Triazoles, Zinc	4276240

* Delivery without reagents for measuring range 0.1 - 10 mg/l Cl_2

\# Where chlorine and chlorine dioxide are present together,
they may be determined quantitatively as a single figure.

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Photometer AL100

Technical Data

Optics	LEDs, interference filters (IF) and photo sensors in transparent sample chamber. Depending on the version, up to 3 different interfernce filters are used. Wavelength specifications of interference filters: 430 nm $\Delta \lambda = 5$ nm 530 nm $\Delta \lambda = 5$ nm 560 nm $\Delta \lambda = 5$ nm 580 nm $\Delta \lambda = 5$ nm 610 nm $\Delta \lambda = 6$ nm 660 nm $\Delta \lambda = 5$ nm
Wavelength Accuracy	± 1 nm
Photometric Accuracy[4]	3% FS (T = 20°C – 25°C)
Photometric Resolution	0.01 A
Power Supply	4 micro batteries (AAA), capacity approx. 17 hours or 5000 tests
Auto - OFF	automatic switch-off
Display	backlit LCD (on keypress)
Storage	internal ring memory for 16 data sets
Interfaces	Infrared interface for test data transfer
Additional feature	real time clock and date
Calibration	factory calibration and user calibration. Reset to factory calibration possible
Dimensions	155 x 75 x 35 mm (L x W x H)
Weight	basic unit approx. 260 g
Environmental conditions	Temperature: 5 – 40 °C rel. humidity: 30 – 90% (non condensing)
Approval	CE

[4] tested with standard solutions

Reference Standard Kits for AL100

The reference standards are designed to check the accuracy and the reliability of the results.

It is not possible to calibrate the photometer with the reference standards.

The shelf life of reference standards is two years from the date of production, provided that storage and use are in accordance with the instructions provided.

Kit Chlorine for instruments with tablet / liquid reagent 0.2* and 1.0* mg/l	4275650
Kit Chlorine for instruments with tablet / liquid reagent 0.5* and 2.0* mg/l	4275655
Kit Chlorine for instruments with tablet / liquid reagent 1.0* and 4.0* mg/l	4275656
Kit Chlorine for instruments with powder reagent (VARIO) 0.2* and 1.0* mg/l	4275660
Kit pH for instruments with tablet / liquid reagent 7,45* pH	4275670

* Approximate figure, actual figure specified in Certificate of Analysis

Verification Standard Kit

The verification standard kit for the AL100 is designed to assure the user of the accuracy and the reliability of the results. The kit contains one zero standard, 6 different cuvettes for checking 6 different wave lengths and allows checking the complete range of AL100 photometers.
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.

Verification Standard Kit	4215670

Accessories

Item	Code
Set of 12 round cuvettes with lid Height 48 mm, Ø 24 mm	197620
Set of 5 round cuvettes with lid Height 48 mm, Ø 24 mm	197629
Set of 10 round cuvettes with lid Height 90 mm, Ø 16 mm	197665
Adapter for round cuvettes ø 16 mm	19802220
Set of 12 plastic cuvettes (PC), with lid **"Multi"-Type 2**, Ø 10 mm	197600
Cuvette stand for 6 round cuvettes Ø 24 mm, acrylic glass	418951
Cuvette stand for 10 cuvettes (Ø 16 mm or □ 13,5 mm), acrylic glass	418957
Mixing cylinder, 25 ml, with stopper required accessory for molybdenum LR test with AL100 (4276140)	19802650
Membrane filter set for use when preparing samples, 25 membrane filters, 0,45 μm, 2 syringes 20 ml	366150
Cleaning cloth for cuvettes	197635
Set of 12 sealing rings for round cuvette ø 24 mm	197626
4 micro batteries (AAA)	1950026
Measuring beaker, volume 100 ml	384801
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
Infra-red data transfer modul IRiM	4214050

Delivery Content

Each AL100 is supplied in a sturdy plastic case with 4 micro batteries (AAA), 3 round cuvettes (glass) with lids, 1 stirring rod &
1 syringe, tablet reagents and/or liquid reagents or VARIO powder reagent, warranty information, certificate (Certificate of Compliance) and instruction manual.

You can find updated information on parameters and measuring ranges on our website at www.aqualytic.de

Primary chlorine standard kit

For checking each chlorine meter. This standard is easy to handle. US EPA Methode 334.0Windows XP, Windows Vista and Windows 7.

[1] USB printer: HP Deskjet 6940 ; [2] each ASCII printer

ValidCheck Chlorine 1,5 mg/l
Code.: 48 10 55 10-A

Verification Standard Kit

The verification standard kit for the AL100 is designed to assure the user of the accuracy and the reliability of the results related to the integrated wave lengths.
The kit contains one zero standard, 6 different cuvettes for checking 6 different wave lengths and allows checking the complete range of AL100photometers.
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.

Verification Standard Kit   4215670