Photometer MD 600 & MD 610

Modern, mobile photometer for rapid, reliable water testing

Bluetooth

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 1000 data records (MD 600), 500 data records (MD 610)

- More than 35 user-specific methods possible

- **Bluetooth**® interface for connection to smart phones and tablets (only with MD 610)*

- iOS® and Android™ app for data management and email delivery (only with MD 610)*

- Infrared interface (only with MD 600)

- Waterproof housing*

- Handheld format, portable

*) analog IP 68, 1 Stunde bei 0,1 Meter

The MD 610 and MD 600 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 Lovibond® 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 the MD 600 (500 data records in the MD 610).

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 MD 600 photometer uses the classic in-frared interface with which data can be transferred by means of the IRiM module to the PC or laptop.

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)

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.lovibond.com.

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.

Verification Standard Kit

The verification standard kit for the MD 600 / 610 is designed to assure the user of the accuracy and the reliability of the results related to the integrated wave lengths.
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   **21 56 40**

Delivery Content

- Instrument in carrying case
- 4 batteries
- 3 Round vials each 24 and 16 mm ø
- 1 adapter each for 16 mm and 13 mm vials
- Plastic stirring rod 13 cm, Brush 11 cm, screw driver
- Warranty information
- Certificate of Compliance
- Instruction Manual

Order codes (without reagents)
MD 600: 21 40 20
MD 610: 21 40 25

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.lovibond.com

Applications

- Waste Water
- Drinking Water
- Industrial Process Water
- Science & Research
- Governmental and Private Laboratories
- Mobile Applications

Photometer MD 600 & MD 610

Technical Data

Display	Backlit graphic-display
Interfaces	Infrared[1] (MD 600), **Bluetooth®** 4.0 (MD 610) RJ45 socket for Internet updates[2]
Optics	LEDs, interference filters (IF) and photo sensor in transparent sample chamber Wavelength range: 430 nm IF $\Delta\lambda$ = 5 nm 530 nm IF $\Delta\lambda$ = 5 nm 560 nm IF $\Delta\lambda$ = 5 nm 580 nm IF $\Delta\lambda$ = 5 nm 610 nm IF $\Delta\lambda$ = 6 nm 660 nm IF $\Delta\lambda$ = 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 (MD 600) approx. 500 data sets (MD 610)
CE-Conformity	

[1] optional available: IRiM (Infrared Interface Modul)

[2] optional available: connection cable with integrated electronics (RS 232 / RJ-45 plug)

* tested with standard solutions

⬤ **Please see pages 78 onwards for reagents (order codes)**

Accessories

Item	Code
Set of 12 round vials with lid Height 48 mm, Ø 24 mm	19 76 20
Set of 10 round vials with lid Height 90 mm, Ø 16 mm	19 76 65
Adapter for round vials ø 16 mm	19 80 21 90
Adapter for round vials ø 13 mm	19 80 21 92
Set of **multy vials-3** with lids path length 10 mm, 10 ml volume Height 48 mm, Ø 24 mm (12 pc.)	19 76 05
Vial stand for 6 round vials Ø 24 mm, acrylic glass	41 89 51
Vial stand for 10 vials (Ø 16 mm or ⬜ 13,5 mm), acrylic glass	41 89 57
Sealing ring for vial ø 24 mm (12 pc.)	19 76 26
Battery, 1.5 V, AA-Alkali-Mangan (4 pc.)	19 50 025
Cleaning cloth for vials	19 76 35
Plastic funnel with handle	47 10 07
Plastic stirring rod, 13 cm length	36 41 00
Plastic stirring rod, 13 cm length, (10 pc.)	36 41 20
Plastic stirring rod, 10 cm length	36 41 09
Plastic stirring rod, 10 cm length, (10 pc.)	36 41 30
Cleaning brush, 10 cm	38 02 30
Verification Standard Kit	21 56 40
Cable for update for connection to a PC	21 40 30
Data transmission modul IRiM	21 40 50

Infrared data transmission modul IRiM

The IRiM (infrared interface modul) uses modern infrared technology to transmit measurement data from the MD 600 photometer to one of 3 optional interfaces. These interfaces can be used to connect to a PC, a USB printer[1] or alternatively 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 alternatively a printer with a serial plug-in connected to the IRiM.

Applicable for the following operating systems: Windows XP, Windows Vista and Windows 7/10.

[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: 21 40 50

New

Photometer and Fluorometer MD 640

Water Chemistry and Fluorescence Measurement in one

Bluetooth

PTSA Fluorescein

Highlights

- Inbuilt PTSA & Fluorescein measurement - no adapter required
- High quality results due to interference filters and long-life LEDs
- Automatic wavelength selection
- **Bluetooth**® data transmittance to Lovibond® AquaLX® App

- Covers more than 120 important methods for water analysis such as aluminium, chlorine, COD, bromine, chlorine dioxide, copper, iron, molybdate and phosphate
- Advanced data management via AquaLX® App

- Portable and easy handling
- One time zero
- Data storage for 500 data sets
- Robust, water proof design
- Backlit display

72

Introduction

The Lovibond® Photometer MD 640 is an enhanced version of the MD 610 photometer, offering additional fluorescence capability for the determination of PTSA and fluorescein in water systems.

PTSA (1,3,6,8 pyrenetetrasulfonic acid, sodium salt) and fluorescein are fluorescent materials that are increasingly being added to speciality water treatment products to enable real time product dose analysis. Both materials are detectable at ppb levels, are non-toxic and chemically stable, all of which make them ideal tracer additives throughout complex water systems. Accurately measuring product dose levels helps the water treatment specialist to control water chemistry; prevent corrosion, scale and biological fouling; increase system efficiency and, ultimately, save energy and costs.

Delivery Content

- Instrument in carrying case
- 4 batteries
- 3 round vials each 24 and 16 mm ø (black lid)
- 1 adapter each for 16 mm and 13 mm vials
- Plastic stirring rod 13 cm, Brush 11 cm, syringe 5 ml, screw driver
- Warranty information
- Certificate of Compliance
- Instruction Manual

  Order codes (without reagents)
  MD 640: 21 41 40

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

  You can find updated information on parameters and measuring ranges at **www.lovibond.com**

Applications

- Industrial Process Water & Waste Water
- Drinking Water
- Science & Research
- Governmental and Private Laboratories
- Mobile Applications

Technical Data

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Optics	LEDs, interference filters (IF) and photo sensor in transparent sample chamber Wavelength range: 430 nm IF $\Delta\lambda$ = 5 nm 530 nm IF $\Delta\lambda$ = 5 nm 560 nm IF $\Delta\lambda$ = 5 nm 580 nm IF $\Delta\lambda$ = 5 nm 610 nm IF $\Delta\lambda$ = 6 nm 660 nm IF $\Delta\lambda$ = 5 nm IF = interference filter
UV excitation	375 nm
Measurement Ranges	PTSA 10 - 1000 ppb Fluorescein 10 - 400 ppb
Calibration Check	Monthly (user) (using calibration sets)
Calibration	Factory set & user adjustable (using calibration Standard Set)
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. 500 data sets
CE-Conformity	

[1] optional available: connection cable with integrated electronics (RS 232 / RJ-45 plug)

* tested with standard solutions

Accessories

Item	Code
Set of 12 round vials with lid Height 48 mm, Ø 24 mm	19 76 20
Set of 12 round vials with **black** lid for PTSA / Fluorescein Height 48 mm, Ø 24 mm	19 76 57
Set of 10 round vials with lid Height 90 mm, Ø 16 mm	19 76 65
Adapter for round vials ø 16 mm	19 80 21 90
Adapter for round vials ø 13 mm	19 80 21 92
Set of **multi vials-3** with lids path length 10 mm, 10 ml volume Height 48 mm, Ø 24 mm (12 pc.)	19 76 05
Vial stand for 6 round vials Ø 24 mm, acrylic glass	41 89 51
Vial stand for 10 vials (Ø 16 mm or ☐ 13,5 mm), acrylic glass	41 89 57
Sealing ring for vial ø 24 mm (12 pc.)	19 76 26
Battery, 1.5 V, AA-Alkali-Mangan (4 pc.)	19 50 025
Cleaning cloth for vials	19 76 35
Plastic funnel with handle	47 10 07
Plastic stirring rod, 13 cm length	36 41 00
Plastic stirring rod, 13 cm length, (10 pc.)	36 41 20
Plastic stirring rod, 10 cm length	36 41 09
Plastic stirring rod, 10 cm length, (10 pc.)	36 41 30
Cleaning brush, 10 cm	38 02 30
Verification Standard Kit	21 56 40
Cable for update for connection to a PC	21 40 30
PTSA standard addition solution, 1000 ppb, 50ml	46 12 10
PTSA calibration set (0, 200, 1000 ppb)	46 12 45
Fluorescein standard addition solution, 400 ppb, 50ml	46 12 30
Fluorescein calibration set (0, 75, 400 ppb)	46 12 40