

# Lovibond® Water Testing Tintometer® Group



## MD 610

Modern, mobile photometer for rapid, reliable water testing



- Easily transfer testing data directly from the field using the AquaLX app
- Portable instrument for use in the lab, plant or out in the field
- Multi-Parameter Testing device combines all of the key water testing parameters and testing ranges

Part Number: 214025

### Easy Access to new testing parameter and ranges

Never have an outdated instrument again! As additional test methods become available, the new software update is available as a free download on our website.

### On-screen access to important test information

Using the correct reagent and sample cell for a preprogrammed calibration curve is essential to achieving accurate results. With the push of a button, it's easy to confirm what is required for the test. The method information will also show which conversion factors can be automatically applied to a method, so results are displayed in the required reporting units.

### No Need to memorize method numbers to access a testing method

The scroll-driven menu system allows you to navigate to the test you need without the need to memorize the test method number. In addition, a Users Favorite Menu can be defined so that the instrument displays only the testing methods you want to see,

### Data Storage and Transfer Capabilities

Store up to 1,000 readings with location ID, time and date stamp. Measurement data stored on the device can be easily exported as an Excel or .txt file using Bluetooth® (MD 610 & MD 640).

### Choice of Reagent Platforms

With over 120 pre-programmed testing methods on one instrument, many parameters offer the choice of using Tablet, Powder Pack or Liquid reagents.

### Create User-Defined Calibration Curves

Have a proprietary testing method or a requirement to conform to a specific governmental or organizational standard method? Tired of converting ABS or %T values into meaningful values? It's easy to create and store as many as 35 user-defined methods on the MD 600 series. Up to a 25 order polynomial along with test parameters such as wavelength, measuring range, unit type and number of decimals displayed can be defined and implemented.

### Accurate, Reproducible Results

The optical system of the MD 600 series operates with six unique wavelengths. By utilizing LEDs and interference filters, the instrument quickly gives you results that you can be confident in.

### One-time-Zero Function

Don't waste time waiting for your instrument to Zero after each test. When testing a new sample, zero the instrument once and all subsequent tests of that sample do not require you to re-zero the instrument.

## Industry

Chemical Industry | Food and Beverage Industry | Industries Others | Marine Industry | Municipalities | NGO | Oil and Gas | Pharmaceutical Industry | Power and Energy

## Application

Boiler Water | Cooling Water | Disinfection Control | Drinking Water Treatment | Food and Beverage | Galvanization | Others | Pool-Water Control | Raw Water Treatment | Waste Water Treatment

## MD 610

The MD 610 multi-parameter photometer features a **Bluetooth®** interface which allows for the sending and sharing of testing data directly from the field. Pre-programmed with over 120 water testing parameters and ranges, it is the ideal field instrument for a variety of applications and industries.

## App AquaLX®

The free app AquaLX® is ideally designed for use in on-site measurements. Compatible with IOS®- and Android®-based smartphones and tablets, it enables uncomplicated data transmission. It maps all measured values as an illustrative graphic with minimum and maximum limits and supports the export of the data as an Excel®-compatible CSV file.

The PC software makes it possible to import data directly from the photometer to the Windows-based PC. As a stationary solution, it facilitates the transfer of data through a quickly established, permanently wireless connection. Further processing of the results can be done both in the software itself and by exporting the data to Excel or as a CSV file.

The set of software and **Bluetooth®** dongle is available as a separate accessory under item no. 2444480 available.

## Measuring Range

Test Name	Measuring Range	Chemical Method
Alkalinity-m HR T	5 - 500 mg/L CaCO <sub>3</sub>	Acid / Indicator
Alkalinity-m T	5 - 200 mg/L CaCO <sub>3</sub>	Acid / Indicator
Alkalinity-p T	5 - 500 mg/L CaCO <sub>3</sub>	Acid / Indicator
Aluminium PP	0.01 - 0.25 mg/L Al	Eriochrom Cyanine R
Aluminium T	0.01 - 0.3 mg/L Al	Eriochrom Cyanine R
Ammonia HR TT	1.0 - 50 mg/L N	Salicylate
Ammonia LR TT	0.02 - 2.5 mg/L N	Salicylate
Ammonia PP	0.01 - 0.8 mg/L N	Salicylate
Ammonia T	0.02 - 1 mg/L N	Indophenole Blue
Bromine PP	0.05 - 4.5 mg/L Br <sub>2</sub>	DPD
Bromine T	0.05 - 13 mg/L Br <sub>2</sub>	DPD
Chloramine (M) PP	0.02 - 4.5 mg/L NH <sub>2</sub> Cl as Cl <sub>2</sub>	Indophenole method
Chloride L (B)	0.5 - 20 mg/L Cl <sup>-</sup>	Mercury Thiocyanate / Iron Nitrate
Chloride T	0.5 - 25 mg/L Cl <sup>-</sup>	Silver Nitrate / Turbidity
Chlorine (free) and Monochloramine	0.02 - 4.50 mg/L Cl <sub>2</sub>	Indophenole method
Chlorine dioxide PP	0.04 - 3.8 mg/L ClO <sub>2</sub>	DPD
Chlorine dioxide T	0.02 - 11 mg/L ClO <sub>2</sub>	DPD / Glycine
Chlorine HR 2 PP	0.1 - 10 mg/L Cl <sub>2</sub>	DPD
Chlorine HR (KI) T	5 - 200 mg/L Cl <sub>2</sub>	KI / Acid
Chlorine HR PP	0.1 - 8 mg/L Cl <sub>2</sub> <sup>a)</sup>	DPD
Chlorine HR T	0.1 - 10 mg/L Cl <sub>2</sub> <sup>a)</sup>	DPD
Chlorine L	0.02 - 4.0 mg/L Cl <sub>2</sub> <sup>a)</sup>	DPD
Chlorine MR PP	0.02 - 3.5 mg/L Cl <sub>2</sub> <sup>a)</sup>	DPD
Chlorine PP	0.02 - 2 mg/L Cl <sub>2</sub> <sup>a)</sup>	DPD
Chlorine T	0.01 - 6.0 mg/L Cl <sub>2</sub> <sup>a)</sup>	DPD
Chromium PP	0.02 - 2 mg/L Cr <sup>b)</sup>	Diphenylcarbazide

Test Name	Measuring Range	Chemical Method
COD HR TT	200 - 15000 mg/L COD <sup>b)</sup>	Dichromate / H <sub>2</sub> SO <sub>4</sub>
COD LMR TT	15 - 300 mg/L COD <sup>b)</sup>	Dichromate / H <sub>2</sub> SO <sub>4</sub>
COD LR TT	3 - 150 mg/L COD <sup>b)</sup>	Dichromate / H <sub>2</sub> SO <sub>4</sub>
COD MR TT	20 - 1500 mg/L COD <sup>b)</sup>	Dichromate / H <sub>2</sub> SO <sub>4</sub>
Copper L	0.05 - 4 mg/L Cu <sup>a)</sup>	Bicinchoninate
Copper PP	0.05 - 5 mg/L Cu	Bicinchoninate
Copper T	0.05 - 5 mg/L Cu <sup>a)</sup>	Biquinoline
CyA HR T	10 - 200 mg/L CyA	Melamine
Cyanide L	0.01 - 0.5 mg/L CN <sup>-</sup>	Pyridine-barbituric Acid
CyA T	10 - 160 mg/L CyA	Melamine
DEHA PP	0.02 - 0.5 mg/L DEHA	PPST
DEHA T (L)	0.02 - 0.5 mg/L DEHA	PPST
Fluoride 2 L	0.1 - 2 mg/L F <sup>-</sup>	SPADNS
Fluoride L	0.05 - 2 mg/L F <sup>-</sup>	SPADNS
H <sub>2</sub> O <sub>2</sub> HR L	40 - 500 mg/L H <sub>2</sub> O <sub>2</sub>	Titanium Tetrachloride / Acid
H <sub>2</sub> O <sub>2</sub> LR L	1 - 50 mg/L H <sub>2</sub> O <sub>2</sub>	Titanium Tetrachloride / Acid
H <sub>2</sub> O <sub>2</sub> T	0.03 - 3 mg/L H <sub>2</sub> O <sub>2</sub>	DPD / Catalyst
Hardness Ca and Mg L	0.05 - 4 mg/L CaCO <sub>3</sub>	Calmagite
Hardness Ca and Mg MR TT	10 - 360 mg/L CaCO <sub>3</sub>	Calmagite
Hardness Calcium (B) T	20 - 500 mg/L CaCO <sub>3</sub>	Murexide
Hardness Calcium (B) T	50 - 900 mg/L CaCO <sub>3</sub>	Murexide
Hardness total HR T	20 - 500 mg/L CaCO <sub>3</sub> <sup>i)</sup>	Metallphthaleine
Hardness total T	2 - 50 mg/L CaCO <sub>3</sub>	Metallphthaleine
Hazen 24	10 - 500 mg/L Pt	(APHA) Platinum Cobalt Standard Method
Hydrazine L	0.01 - 0.6 mg/L N <sub>2</sub> H <sub>4</sub>	Dimethylaminobenzaldehyde
Hydrazine P	0.05 - 0.5 mg/L N <sub>2</sub> H <sub>4</sub>	Dimethylaminobenzaldehyde
Hypochlorite T	0.2 - 16 % NaOCl	Potassium Iodide
Iron (TPTZ) PP	0.02 - 1.8 mg/L Fe	TPTZ
Iron HR L	0.1 - 10 mg/L Fe	Thioglycolate
Iron in Mo PP (224)	0.01 - 1.8 mg/L Fe	TPTZ
Iron LR L (A)	0.03 - 2 mg/L Fe	Ferrozine / Thioglycolate
Iron LR L (B)	0.03 - 2 mg/L Fe	Ferrozine / Thioglycolate
Iron PP	0.02 - 3 mg/L Fe <sup>g)</sup>	1,10-Phenanthroline
Iron T	0.02 - 1 mg/L Fe	Ferrozine / Thioglycolate
K <sub>S4.3</sub> T	0.1 - 4 mmol/L K <sub>S4.3</sub>	Acid / Indicator
Iodine T	0.05 - 3.6 mg/L I	DPD
Manganese HR PP	0.1 - 18 mg/L Mn	Periodate Oxidation
Manganese L	0.05 - 5 mg/L Mn	Formaloxime
Manganese LR PP	0.01 - 0.7 mg/L Mn	PAN
Manganese T	0.2 - 4 mg/L Mn	Formaloxime
Molybdate HR L	1 - 100 mg/L MoO <sub>4</sub>	Thioglycolate
Molybdate HR PP	0.3 - 40 mg/L Mo	Mercaptoacetic Acid
Molybdate LR PP	0.03 - 3 mg/L Mo	Ternary Complex
Molybdate T	1 - 50 mg/L MoO <sub>4</sub>	Thioglycolate
Nickel L	0.2 - 7 mg/L Ni	Dimethylglyoxime
Nitrate MR PP	1 - 30 mg/L NO <sub>3</sub> -N	Zinc Reduction
Nitrate T	0.08 - 1 mg/L N	Zinc Reduction / NED
Nitrate TT	1 - 30 mg/L N	Chromotropic Acid
Nitrite HR PP	2 - 250 mg/L NO <sub>2</sub> <sup>-</sup>	Ferrous Sulfate Method
Nitrite HR TT	0.3 - 3 mg/L N	Sulfanilic / Naphthylamine
Nitrite LR TT	0.03 - 0.6 mg/L N	Sulfanilic / Naphthylamine
Nitrite PP	0.01 - 0.3 mg/L N	Diazotation

Test Name	Measuring Range	Chemical Method
Nitrite T	0.01 - 0.5 mg/L N	N-(1-Naphthyl)-ethylen-diamine
Nitrite VHR L	25 - 2500 mg/L NO <sub>2</sub> <sup>-</sup>	Ferrous Sulfate Method
Oxygen active T	0.1 - 10 mg/L O <sub>2</sub>	DPD
Oxygen dissolved C	10 - 800 µg/L O <sub>2</sub> <sup>o)</sup>	Rhodazine D TM
Ozone PP	0.015 - 1.2 mg/L O <sub>3</sub>	DPD / Glycine
Ozone T	0.02 - 2 mg/L O <sub>3</sub>	DPD / Glycine
Phenol T	0.1 - 5 mg/L C <sub>6</sub> H <sub>5</sub> OH	4-Aminoantipyrine
PHMB T	2 - 60 mg/L PHMB	Buffer / Indicator
Phosphate h. TT	0.02 - 1.6 mg/L P <sup>b)</sup>	Phosphomolybdenum Blue
Phosphate HR C	1.6 - 13 mg/L P <sup>c)</sup>	Vanadomolybdate
Phosphate HR L	5 - 80 mg/L PO <sub>4</sub>	Vanadomolybdate
Phosphate HR T	0.33 - 26 mg/L P	Vanadomolybdate
Phosphate HR TT	1 - 20 mg/L P	Vanadomolybdate
Phosphate LR C	0.02 - 1.6 mg/L P <sup>c)</sup>	Stannous Chloride
Phosphate LR L	0.1 - 10 mg/L PO <sub>4</sub>	Phosphomolybic Acid / Ascorbic Acid
Phosphate LR T	0.02 - 1.3 mg/L P	Phosphomolybdenum Blue
Phosphate PP	0.02 - 0.8 mg/L P	Phosphomolybdenum Blue
Phosphate t. TT	0.02 - 1.1 mg/L P <sup>b)</sup>	Phosphomolybdenum Blue
Phosphate TT	0.02 - 1.63 mg/L P	Phosphomolybdenum Blue
Phosphonate PP	0.02 - 125 mg/L PO <sub>4</sub>	Persulfate UV Oxidation Method
pH-value HR T	8.0 - 9.6 pH	Thymol Blue
pH value L	6.5 - 8.4 pH	Phenol Red
pH-value LR T	5.2 - 6.8 pH	Bromocresolpurple
pH-value T	6.5 - 8.4 pH	Phenol Red
Polyacrylate L	1 - 30 mg/L Polyacryl	Turbidity
Potassium T	0.7 - 16 mg/L K	Tetraphenylborat Turbidity
Silicate HR PP	1 - 90 mg/L SiO <sub>2</sub>	Silicomolybdate
Silicate L	0.1 - 8 mg/L SiO <sub>2</sub>	Heteropolyblue
Silicate LR PP	0.1 - 1.6 mg/L SiO <sub>2</sub>	Heteropolyblue
Silicate T	0.05 - 4 mg/L SiO <sub>2</sub>	Silicomolybdenum Blue
Sulphate HR PP	50 - 1000	Bariumsulphate Turbidity
Sulphate PP	5 - 100 mg/L SO <sub>4</sub> <sup>2-</sup>	Bariumsulphate Turbidity
Sulphate T	5 - 100 mg/L SO <sub>4</sub> <sup>2-</sup>	Bariumsulphate Turbidity
Sulphide L	15 - 1400 mg/L Tannin	Methylene Blue
Sulphide T	0.04 - 0.5 mg/L S <sup>2-</sup>	DPD / Catalyst
Sulphite T	0.1 - 5 mg/L SO <sub>3</sub>	DTNB
Surfactants M. (anion.) TT	0.05 - 2 mg/L SDSA	Methylene Blue
Surfactants M. (cation.) TT	0.05 - 1.5 mg/L CTAB	Disulphine Blue
Surfactants M. (not ionic) TT	0.1 - 7.5 mg/L Triton X-100	TBPE
Suspended solids 24	10 - 750 mg/L TSS	Turbidity / Attenuated Radiation Method
Tannin L	0.5 - 20 mg/L Tannin	
TN HR TT	5 - 150 mg/L N <sup>b)</sup>	Persulphate Digestion
TN LR TT	0.5 - 25 mg/L N <sup>b)</sup>	Persulphate Digestion
TOC HR M. TT	50 - 800 mg/L TOC <sup>b)</sup>	H <sub>2</sub> SO <sub>4</sub> / Persulphate / Indicator
TOC LR M. TT	5 - 80 mg/L TOC <sup>b)</sup>	H <sub>2</sub> SO <sub>4</sub> / Persulphate / Indicator
Triazole PP	1 - 16 mg/L Benzotriazole or Tolyltriazole	Catalyzed UV Digestion

Test Name	Measuring Range	Chemical Method
Turbidity 24	10 - 1000 FAU	Attenuated Radiation Method
Urea T	0.1 - 2.5 mg/L Urea	Indophenol / Urease
Zinc L	0.1 - 2.5 mg/L Zn	Zincon / EDTA
Zinc T	0.02 - 1 mg/L Zn	Zincon

## Technical Data

<b>Optics</b>	LEDs, interference filters (IF) and photo sensor in transparent sample chamber. Wavelength range: 430 nm IF Δλ = 5 nm 530 nm IF Δλ = 5 nm 560 nm IF Δλ = 5 nm 580 nm IF Δλ = 5 nm 610 nm IF Δλ = 6 nm 660 nm IF Δλ = 5 nm IF = interference filter
<b>Wavelength Accuracy</b>	± 1 nm
<b>Photometric Accuracy</b>	2 % FS (T = 20 °C – 25 °C)
<b>Suitable Vials</b>	Multi vial 10 mm Round Cuvettes 13 mm Round Cuvettes 16 mm Round Cuvettes 24 mm
<b>Display</b>	Graphic-display
<b>Interfaces</b>	Bluetooth
<b>Operation</b>	Acid and solvent resistant, touch-sensitive keypad with audible feedback via integrated beeper
<b>Auto – OFF</b>	Yes
<b>Updates</b>	Software updates via internet
<b>Internal Storage</b>	approx. 500 data sets
<b>Power Supply</b>	4 batteries (Mignon AA/LR6)
<b>Battery Life Time</b>	approx. 26 h
<b>Beeper</b>	existing
<b>Portability</b>	Benchtop
<b>Environmental Conditions</b>	5 – 40 °C at max. 30 – 90 % Conditions rel. humidity (non condensing)
<b>Protection Class</b>	IP 68
<b>Compliance</b>	CE
<b>Languages User Interface</b>	German, English, French, Spanish, Italian, Portuguese, Polish, Indonesian
<b>Dimensions</b>	95 x 45 x 210 mm
<b>Weight</b>	450 g

## Delivery Scope

- In case
- 4 Batteries (AA)
- 3 Vials 24 mm ø
- 3 Vials 16 mm ø
- 1 Adapter each (16 mm and 13 mm cuvettes)
- Plastic stirring rod 13 cm
- Brush 11 cm
- Screw driver
- Instruction manual
- Certificate
- Warranty information
- Without reagents
- Please name the required reagent set or parameter in your order

Title	Part Number
Pipette, 200 µl	365042
Pipette, 1000 µl	365045
Membrane filter set for use when preparing samples, 25 membrane filters 0.45 µm, 2 syringes 20 ml	366150
250 mL bottle, AF 631	375072
Brush, 11 cm length	380230
Measuring beaker, 100 ml	384801
Measuring spoon, 1 g	384930
UV Pen Lamp, 254 nm	400740
UV protection glasses, orange	400755
Cuvette stand for 6 round cuvettes Ø 24 mm	418951
Cuvette stand for 10 round cuvettes Ø 16 mm	418957
Pipette tips, 1-5 ml (white) 100 pc.	419066
Pipette tips, 0,1-1 ml (blue), 1000 pc.	419073
Automatic pipette, 1-5 ml	419076
Screw caps TOC	420757
Measuring spoon no. 8, black	424513
Plastic funnel with handle (white)	471007
ValidCheck Chlorine 1,5 mg/l	48105510
Stirring rod and spoon	56A006601
Factory calibration certificate ISO 9001 for MD600/MD610/MD640/MultiDirect	999752

Title	Part Number
Water sampler with bottle 250 mL and lid, AF 631	170500
Adapter (13 mm) MultiDirect for Vacu-vial	192075
Batteries (AA), set of 4	1950025
Multy cuvette-3, set of 12	197605
Round cuvette 24 mm ø, set of 12	197620
Sealing ring for round vials 24 mm ø, set of 12	197626
Round cuvette 24 mm ø, set of 5	197629
Cleaning cloth	197635
Sample cuvettes with lid, Height 95 mm, ø 24 mm, set of 6	197646
Round cuvette 16 mm ø, set of 10	197665
Adapter for round cuvettes 16 mm ø	19802190
Adapter for round cuvettes 13 mm Ø	19802192
Rubber seal cap	19802223
Mixing cylinder, 25 ml	19802650
Fixed price service package for MD600/MD610	19802702
Service plan - 3 years for MD600/MD610	19802802
Update cable	214030
Update cable set with USB/R232 adapter	214031
Reference Standard Kit Chlorine - 0.2 and 1.0 mg/l (MD/PM 600 series)	215630
Reference Standard Kit Chlorine - 0.5 and 2.0 mg/l (MD/PM 600 series)	215635
Reference Standard Kit Chlorine - 1.0 and 4.0 mg/l (MD/PM 600 series)	215636
Verification Standard Kit MD 600	215640
Thermoreactor RD 125	2418940
Standard Solution Ammonia, 1.3 mg/l NH <sub>4</sub> = 1.0 mg/l N	2420800
Standard Solution Ammonia, 5.2 mg/l NH <sub>4</sub> = 4.0 mg/l N	2420801
Standard Solution Ammonia, 26 mg/l NH <sub>4</sub> = 20 mg/l N	2420802
Standard Solution Phosphate, 4.6 mg/l PO <sub>4</sub> = 1.5 mg/l P	2420808
Standard Solution Phosphate, 20 mg/l PO <sub>4</sub> = 6,5 mg/l P	2420809
Kit of BT data transfer software and Bluetooth Dongle	2444480
Stirring rod, 13 cm length	364100
Stirring rod, 10 cm length	364109
Stirring rod, 13 cm length, set of 10	364120
Stirring rod, 10 cm length, set of 10	364130
Pipette Tips	365032
Pipette 100 µl	365041

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**Tintometer GmbH**

Lovibond® Water Testing  
Schleefstraße 8-12  
44287 Dortmund  
Tel.: +49 (0)231/94510-0  
sales@lovibond.com  
www.lovibond.com  
Germany

**The Tintometer Limited**

Lovibond House  
Sun Rise Way  
Amesbury, SP4 7GR  
Tel.: +44 (0)1980 664800  
sales@lovibond.uk  
www.lovibond.com  
UK

**Tintometer China**

9F, SOHO II C.  
No.9 Guanghualu,  
Chaoyang District,  
Beijing, 100020  
Customer Care China Tel.: 4009021628  
Tel.: +86 10 85251111 Ext. 330  
Fax: +86 10 85251001  
chinaoffice@tintometer.com  
www.lovibond.com  
China

**Tintometer South East Asia**

Unit B-3-12, BBT One Boulevard,  
Lebu Nilam 2, Bandar Bukit Tinggi,  
Klang, 41200, Selangor D.E  
Tel.: +60 (0)3 3325 2285/6  
Fax: +60 (0)3 3325 2287  
lovibond.asia@tintometer.com  
www.lovibond.com  
Malaysia

**Tintometer Brazil**

Caixa Postal: 271  
CEP: 13201-970  
Jundiaí – SP  
Tel.: +55 (11) 3230-6410  
sales@lovibond.us  
www.lovibond.com.br  
Brazil

**Tintometer Inc.**

6456 Parkland Drive  
Sarasota, FL 34243  
Tel: 941.756.6410  
Fax: 941.727.9654  
sales@lovibond.us  
www.lovibond.us  
USA

**Tintometer India Pvt. Ltd.**

Door No: 7-2-C-14, 2<sup>nd</sup>, 3<sup>rd</sup> & 4<sup>th</sup> Floor  
Sanathnagar Industrial Estate,  
Hyderabad, 500018  
Telangana  
Tel: +91 (0) 40 23883300  
Toll Free: 1 800 599 3891/ 3892  
indiaoffice@lovibond.in  
www.lovibondwater.in  
India

**Tintometer Spain**

Postbox: 24047  
08080 Barcelona  
Tel.: +34 661 606 770  
sales@tintometer.es  
www.lovibond.com  
Spain