

# Lovibond® Water Testing Tintometer® Group



## MD 640

Modern, mobile photometer for rapid, reliable water testing



- PTSA and Fluorescein testing capabilities
- All of the colorimetric tests a Boiler or Cooling Water Technician would need - in one device
- Rugged, but lightweight, it is ideal for use out in the field

Part Number: 214140

### 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Never have an outdated instrument again!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. Test data stored on the instrument can be easily exported using the IRiM accessory, which uses an infrared connection to export data directly to an Excel or .txt file.

### 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 | Galvanization | Pool Water Control | Pool Water Treatment | Raw Water Treatment | Waste Water Treatment

## MD 640

Featuring the ability to measure PTSA and Fluorescein, over 120 pre-programmed photometric tests and a **Bluetooth®** interface for data transfer, the MD 640 is the ultimate testing device for testing the water quality of a Boiler or Cooling Tower system.

## 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 - 300 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
Boron T	0.1 - 2 mg/l B	Azomethine
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
Chloride L (A)	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 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 (KI) T (105)	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
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
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
Fluorescein	10 - 300 ppb	Fluorescence
Fluorescein	10 - 400 ppb	Fluorescence
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

Test Name	Measuring Range	Chemical Method
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 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 C	0.01 - 0.7 mg/l N <sub>2</sub> H <sub>4</sub> <sup>c)</sup>	PDMAB
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>9)</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	0.5 - 66 mg/l MoO <sub>4</sub>	Mercaptoacetic Acid
Molybdate LR PP	0.05 - 5 mg/l MoO <sub>4</sub>	Ternary Complex
Molybdate T	1 - 50 mg/l MoO <sub>4</sub>	Thioglycolate
Nickel L	0.2 - 7 mg/l Ni	Dimethylglyoxime
Nitrate DMP HR	1.2 - 35 mg/l N	2,6-Dimethylphenole
Nitrate T	0.08 - 1 mg/l N	Zinc Reduction / NED
Nitrate TT	1 - 30 mg/l N	Chromotropic Acid
Nitrite PP	0.01 - 0.3 mg/l N	Diazotation
Nitrite T	0.01 - 0.5 mg/l N	N-(1-Naphthyl)-ethylenediamine
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>c)</sup>	Rhodazine D TM
Ozone T	0.02 - 2 mg/l O <sub>3</sub>	DPD / Glycine
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 P	Vanadomolybdate
Phosphate HR T	0.33 - 26 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 P	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	0.06 - 5 mg/l P	Phosphomolybdenum Blue
Phosphonate PP	0.2 - 125 mg/l PO <sub>4</sub>	Persulfate UV Oxidation Method
pH-value HR T	8.0 - 9.6	Thymol Blue
pH value L	6.5 - 8.4	Phenol Red

Test Name	Measuring Range	Chemical Method
pH-value LR T	5.2 - 6.8	Bromocresolpurple
pH-value T	6.5 - 8.4	Phenol Red
Polyacrylate L	1 - 30 mg/l Polyacryl	Turbidity
Potassium T	0.7 - 16 mg/l K	Tetraphenylborat Turbidity
PTSA	10 - 400 ppb	Fluorescence
PTSA	10 - 1000 ppb	Fluorescence
Silcate T	0.05 - 4 mg/l SiO <sub>2</sub>	Silicomolybdenum Blue
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
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 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
TN HR TT	5 - 150 mg/l N <sup>®</sup>	Persulphate Digestion
TN LR TT	0.5 - 25 mg/l N <sup>®</sup>	Persulphate Digestion
TOC HR M. TT	50 - 800 mg/l TOC <sup>®</sup>	H <sub>2</sub> SO <sub>4</sub> / Persulphate / Indicator
TOC LR M. TT	5 - 80 mg/l TOC <sup>®</sup>	H <sub>2</sub> SO <sub>4</sub> / Persulphate / Indicator
Triazole PP	1 - 16 mg/l Benzotriazole or Tolytriazole	Catalyzed UV Digestion
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>Operation</b>	Acid and solvent resistant, touch-sensitive keypad with audible Feedback via integrated beeper
<b>Display</b>	Backlit graphic-display
<b>Interfaces</b>	Bluetooth
<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>Auto – OFF</b>	Yes
<b>Beeper</b>	existing
<b>Portability</b>	Benchtop

<b>Environmental Conditions</b>	Temperature: 5 - 40 °C rel. humidity: 30 - 90 % (non condensing)
<b>Compliance</b>	CE
<b>Protection Class</b>	IP 68
<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

## Accessories

Title	Part Number
Water sampler, AF 631	170500
Batteries (AA), set of 4	1950025
Multy cuvette-3, set of 12	197605
Round cuvette 24 mm, set of 12	197620
Sealing ring for round vials 24 mm, set of 12	197626
Round cuvette 24 mm, set of 5	197629
Cleaning cloth	197635
Sample cuvettes with black lid, Height 48 mm, ø 24 mm, set of 12	197657
Round cuvette 16 mm, set of 10	197665
Adapter for round cuvettes 16 mm	19802190
Adapter for round cuvettes 13 mm	19802192
Rubber seal cap	19802223
Mixing cylinder, 25 ml	19802650
Update cable	214030
Reference Standard Kit Chlorine - 2.0 and 1.0	215630
Reference Standard Kit Chlorine - 0.5 and 2.0	215635
Reference Standard Kit Chlorine - 1.0 and 4.0	215636
Verification Standard Kit MD 600	215640
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 COD 100 mg/l	2420803
Standard Solution COD 500 mg/l	2420804
Standard Solution COD 5000 mg/l	2420805
Standard Solution Nitrate, 40 mg/l NO <sub>3</sub> = 9.0 mg/l N	2420806
Standard Solution Nitrate, 5 mg/l NO <sub>2</sub> = 1.5 mg/l N	2420807

Title	Part Number
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
Membrane filter set for use when preparing samples, 25 membrane filters 0.45 µm, 2 syringes 20 ml	366150
500 ml bottle, AF 631	375069
Brush, 11 cm length	380230
Measuring beaker, 100 ml	384801
UV Pen Lamp, 254 nm	400740
Cuvette stand for 6 round cuvettes Ø 24 mm	418951
Cuvette stand for 10 round cuvettes Ø 16 mm	418957
PTSA standard addition solution, 200 ppb	461200
PTSA standard addition solution, 1000 ppb	461210
Fluoresceine standard addition solution, 400 ppb	461230
Fluoresceine standard, 0 ppb	461235
Fluoresceine calibration set (0, 200, 1000 ppb)	461240
PTSA calibration set (0, 200, 1000 ppb)	461245
Plastic funnel with handle (white)	471007
ValidCheck Chlorine 1,5 mg/l	48105510
Manufacturer's test certificate M for MD 600 series	999770

#### Tintometer GmbH

Lovibond® Water Testing  
Schleefstraße 8-12  
44287 Dortmund  
Tel.: +49 (0)231/94510-0  
Fax: +49 (0)231/94510-30  
sales@lovibond.com  
www.lovibond.com  
Germany

#### The Tintometer Limited

Lovibond House  
Sun Rise Way  
Amesbury, SP4 7GR  
Tel.: +44 (0)1980 664800  
Fax: +44 (0)1980 625412  
sales@lovibond.uk  
www.lovibond.com  
UK

#### Tintometer AG

Hauptstraße 2  
5212 Hausen AG  
Tel.: +41 (0)56/4422829  
Fax: +41 (0)56/4424121  
info@tintometer.ch  
www.tintometer.ch  
Switzerland

#### Tintometer China

Room 1001, China Life Tower  
16 Chaoyangmenwai Avenue,  
Beijing, 100020  
Tel.: +86 10 85251111 App. 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@tintometer.com.br  
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.com  
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@tintometer.com  
www.lovibondwater.in  
India

#### Tintometer Spain

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