

Lovibond® Water Testing

Tintometer® Group



MultiDirect, with battery

The MultiDirect - a contemporary, microprocessor-controlled photometer with ergonomically designed keypad and largeformat graphic display



- Dual Beam Technology and Interference Filters for highest accuracy
- A wide range of pre-programmed methods
- Long-term stable LEDs as light sources
- Update of new methods and languages via Internet (free of charge)

Part Number: 210000-B

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

Measuring Range

Test Name	Measuring Range	Chemical Method
Alkalinity-m HR T	5 - 500 mg/l CaCO ₃	Acid / Indicator
Alkalinity-m T	5 - 200 mg/l CaCO ₃	Acid / Indicator
Alkalinity-p T	5 - 300 mg/l CaCO ₃	Acid / Indicator
Aluminium T	0.01 - 0.3 mg/l Al	Eriochrom Cyanine R
Aluminium VARIO PP	0.01 - 0.25 mg/l Al	Eriochrom Cyanine R
Ammonia T	0.02 - 1 mg/l N	Indophenole Blue
Ammonia VARIO HR TT	1.0 - 50 mg/l N	Salicylate
Ammonia VARIO LR TT	0.02 - 2.5 mg/l N	Salicylate
Ammonia VARIO PP	0.01 - 0.8 mg/l N	Salicylate
Boron T	0.1 - 2 mg/l B	Azomethine
Bromine T	0.05 - 13 mg/l Br ₂	DPD
Bromine VARIO PP	0.05 - 4.5 mg/l Br ₂	DPD
Chloride T	0.5 - 25 mg/l Cl ⁻	Silver Nitrate / Turbidity

Test Name	Measuring Range	Chemical Method
Chlorine dioxide T	0.02 - 11 mg/l ClO ₂	DPD / Glycine
Chlorine dioxide VARIO PP	0.04 - 3.8 mg/l ClO ₂	DPD
Chlorine HR (KI) T (105)	5 - 200 mg/l Cl ₂	KI / Acid
Chlorine HR T	0.1 - 10 mg/l Cl ₂ ^{a)}	DPD
Chlorine L	0.02 - 4.0 mg/l Cl ₂ ^{a)}	DPD
Chlorine PP	0.02 - 2 mg/l Cl ₂ ^{a)}	DPD
Chlorine T	0.01 - 6.0 mg/l Cl ₂ ^{a)}	DPD
Chlorine VARIO PP	0.02 - 3.5 mg/l Cl ₂ ^{a)}	DPD
Chlorite T	0.03 - 2.5 mg/l ClO ₂ ⁻	DPD
Chromium PP	0.02 - 2 mg/l Cr ^{b)}	Diphenylcarbazide
COD HR VARIO TT	200 - 15000 mg/l COD ^{b)}	Dichromate / H ₂ SO ₄
COD LR VARIO TT	3 - 150 mg/l COD ^{b)}	Dichromate / H ₂ SO ₄
COD MR VARIO TT	20 - 1500 mg/l COD ^{b)}	Dichromate / H ₂ SO ₄
Copper T	0.05 - 5 mg/l Cu ^{a)}	Biquinoline
Copper VARIO PP	0.05 - 5 mg/l Cu	Bicinchoninate
Cyanide L	0.01 - 0.5 mg/l CN ⁻	Pyridine-barbituric Acid
CyA T	5 - 200 mg/l CyA	Melamine
CyA T	10 - 160 mg/l CyA	Melamine
DEHA T (L)	0.02 - 0.5 mg/l DEHA	PPST
DEHA VARIO PP	0.02 - 0.5 mg/l DEHA	PPST
Fluoride L	0.05 - 2 mg/l F ⁻	SPADNS

Test Name	Measuring Range	Chemical Method
H ₂ O ₂ HR L	40 - 500 mg/l H ₂ O ₂	Titanium Tetrachloride / Acid
H ₂ O ₂ LR L	1 - 50 mg/l H ₂ O ₂	Titanium Tetrachloride / Acid
H ₂ O ₂ T	0.03 - 3 mg/l H ₂ O ₂	DPD / Catalyst
Hardness Calcium (B) T	0 - 500 mg/l CaCO ₃	Murexide
Hardness Calcium (B) T	50 - 900 mg/l CaCO ₃	Murexide
Hardness total HR T	20 - 500 mg/l CaCO ₃ ¹⁾	Metallphthaleine
Hardness total T	2 - 50 mg/l CaCO ₃	Metallphthaleine
Hazen	10 - 500 mg/l Pt	(APHA) Platinum Cobalt Standard Method
Hydrazine C	0.01 - 0.7 mg/l N ₂ H ₄ ^{o)}	PDMAB
Hydrazine P	0.05 - 0.5 mg/l N ₂ H ₄	Dimethylaminobenzaldehyde
Hydrazine VARIO L	0.005 - 0.6 mg/l N ₂ H ₄	Dimethylaminobenzaldehyde
Hypochlorite T	0.2 - 16 % NaOCl	Potassium Iodide
Iron in Mo VARIO PP (224)	0.01 - 1.8 mg/l Fe	TPTZ
Iron T	0.02 - 1 mg/l Fe	Ferrozine / Thioglycolate
Iron VARIO PP	0.02 - 3 mg/l Fe ^{a)}	1,10-Phenanthroline
Ks _{4,3} T	0.1 - 4 mmol/l Ks _{4,3}	Acid / Indicator
Iodine T	0.05 - 3.6 mg/l I	DPD
Manganese HR VARIO PP	0.1 - 18 mg/l Mn	Periodate Oxidation
Manganese LR VARIO PP	0.01 - 0.7 mg/l Mn	PAN
Manganese T	0.2 - 4 mg/l Mn	Formaloxime
Molybdate HR VARIO PP	0.5 - 66 mg/l MoO ₄	Mercaptoacetic Acid
Molybdate LR VARIO PP	0.05 - 5 mg/l MoO ₄	Mercaptoacetic Acid
Molybdate T	1 - 50 mg/l MoO ₄	Thioglycolate
Nickel T	0.1 - 10 mg/l Ni	Nioxime
Nitrate DMP HR	1.2 - 35 mg/l N	2,6-Dimethylphenole
Nitrate VARIO TT	1 - 30 mg/l N	Chromotropic Acid
Nitrite T	0.01 - 0.5 mg/l N	N-(1-Naphthyl)-ethylen-diamine
Nitrite VARIO PP	0.01 - 0.3 mg/l N	Diazotation
Nitrogen total HR VARIO TT	5 - 150 mg/l N ^{b)}	Persulphate Digestion
Nitrogen total LR VARIO TT	0.5 - 25 mg/l N ^{b)}	Persulphate Digestion
Oxygen active T	0.1 - 10 mg/l O ₂	DPD
Oxygen dissolved C	10 - 800 µg/l O ₂ ^{c)}	Rhodazine D TM
Ozone T	0.02 - 2 mg/l O ₃	DPD / Glycine
PHMB T	2 - 60 mg/l PHMB	Buffer / Indicator
Phosphate g. VARIO TT	0.02 - 1.1 mg/l P ^{b)}	Phosphomolybdenum Blue
Phosphate h. VARIO TT	0.02 - 1.6 mg/l P ^{b)}	Phosphomolybdenum Blue
Phosphate HR C	5 - 40 mg/l P ^{c)}	Vanadomolybdate
Phosphate HR T	1 - 80 mg/l P	Vanadomolybdate
Phosphate LR C	0.05 - 5 mg/l P ^{c)}	Stannous Chloride
Phosphate LR T	0.05 - 4 mg/l P	Phosphomolybdenum Blue
Phosphate VARIO PP	0.06 - 2.5 mg/l P	Phosphomolybdenum Blue
Phosphate VARIO TT	0.06 - 5 mg/l P	Phosphomolybdenum Blue
Phosphonate VARIO PP	0.2 - 125 mg/l P	Persulfate UV Oxidation Method
pH-value HR T	8.0 - 9.6	Thymol Blue
pH value L	6.5 - 8.4	Phenol Red
pH-value LR T	5.2 - 6.8	Bromocresolpurple
pH-value T	6.5 - 8.4	Phenol Red
Potassium T	0.7 - 12 mg/l K	Tetraphenylborat Turbidity

Test Name	Measuring Range	Chemical Method
Silcate T	0.05 - 4 mg/l SiO ₂	Silicomolybdenum Blue
Silicate HR VARIO PP	1 - 90 mg/l SiO ₂	Silicomolybdate
Silicate LR VARIO PP	0.05 - 1.6 mg/l SiO ₂	Heteropolyblue
Sulphate T	5 - 100 mg/l SO ₄ ²⁻	Bariumsulphate Turbidity
Sulphate VARIO PP	5 - 100 mg/l SO ₄ ²⁻	Bariumsulphate Turbidity
Sulphide T	0.04 - 0.5 mg/l S ²⁻	DPD / Catalyst
Sulphite T	0.1 - 5 mg/l SO ₃	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	10 - 750 mg/l TSS	Turbidity / Attenuated Radiation Method
TOC HR M. TT	50 - 800 mg/l TOC ^{b)}	H ₂ SO ₄ / Persulphate / Indicator
Total iron VARIO PP	0.02 - 1.8 mg/l Fe	TPTZ
Turbidity	10 - 1000 FAU	Attenuated Radiation Method
Urea T	0.1 - 2.5 mg/l Urea	Indophenol / Urease
Zinc T	0.02 - 1 mg/l Zn	Zincon

Technical DataTechnical Data

Light Source	LED
Optics	6 temperature compensating LED, internal reference channel, photodiode in protected sample chamber 6 interference filters in one unit, λ 1 = 430 nm IF Δλ (nm) = 5, λ 2 = 530 nm IF Δλ (nm) = 5, λ 3 = 560 nm IF Δλ (nm) = 5, λ 4 = 580 nm IF Δλ (nm) = 5, λ 5 = 610 nm IF Δλ (nm) = 6, λ 6 = 660 nm IF Δλ (nm) = 5 IF = interference filter
Operation	Acid and solvent resistant, touch-sensitive keypad with audible feedback
Display	Graphic-display
Interfaces	RS 232
Auto-Check	By pressing ON/OFF-key
Updates	Software and methods update by means of the internet
Internal Storage	approx. 1000 data sets with date, time and registration number
Power Supply	7 NiMH-battery pack (AA/Mignon)
Auto – OFF	Yes
Portability	Benchtop
Environmental Conditions	up to max. 90 % humidity (non condensing) approx. 5 - 40 °C
Compliance	CE
Dimensions	265 x 70 x 195 mm
Weight	1000 g (with rechargeable batteries)
Weight with Packaging	(with rechargeable batteries)

Delivery Scope Text

- in case
- 7 rechargeable batteries
- mains charger 100-240 V with international power supply plug in
- 1 Lithium battery
- 3 vials ø 24 mm
- 3 tubes ø 16 mm
- connection cable for PC
- adapter for 16 mm tubes
- 3 syringes
- plastic beaker 100 ml
- instruction manual
- certificate
- warranty information
- without reagents
- Please name the required reagent set or parameter in your order.

Title	Part Number
Membrane filter set for use when preparing samples, 25 membrane filters 0.45 µm, 2 syringes 20 ml	366150
Plastic syringe, 2 ml	369080
Plastic syringe, 10 ml	369090
Lid, AF 631	375068
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
Plastic funnel with handle (white)	471007
Manufacturer's test certificate M for MultiDirect	999790

Accessory

Title	Part Number
Water sampler, AF 631	170500
Universal adapter for socket, international	192065
Adapter for Vacu-vial	192075
Mains charger, 100-240 V, 50-60 Hz, with international adapters	193010
Lithiumbattery CR2032	1950017
Ni-MH-Akku AA Mignon, 1100 mAh, set of 7	1950020
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
Round cuvette 16 mm, set of 10	197665
Adapter for round cuvettes 16 mm MultiDirect	19801094
Lid for adapter	19801100
Rubber seal cap	19801501
Mixing cylinder, 25 ml	19802650
Connection cable to a PC, seriell 9-pins	198198
Verification Standard Kit MultiDirect	215650
Standard Solution Ammonia, 1.3 mg/l NH ₄ = 1.0 mg/l N	2420800
Standard Solution Ammonia, 5.2 mg/l NH ₄ = 4.0 mg/l N	2420801
Standard Solution Ammonia, 26 mg/l NH ₄ = 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 ₃ = 9.0 mg/l N	2420806
Standard Solution Nitrate, 5 mg/l NO ₂ = 1.5 mg/l N	2420807
Standard Solution Phosphate, 4.6 mg/l PO ₄ = 1.5 mg/l P	2420808
Standard Solution Phosphate, 20 mg/l PO ₄ = 6,5 mg/l P	2420809
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
Plastic syringe, 5 ml	366120

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