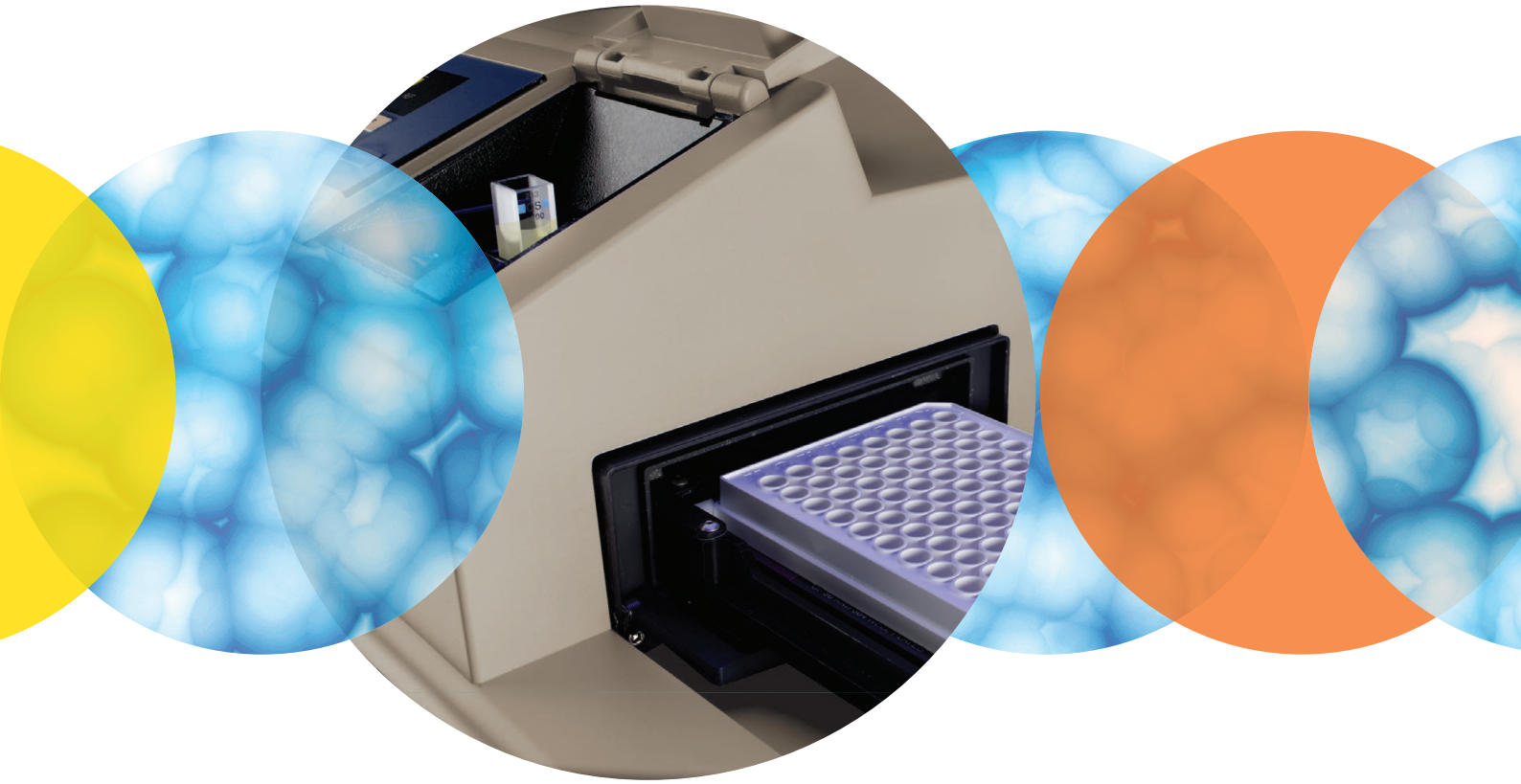
MOLECULAR DEVICES

vwr™ part of avantor | order on VWR.COM

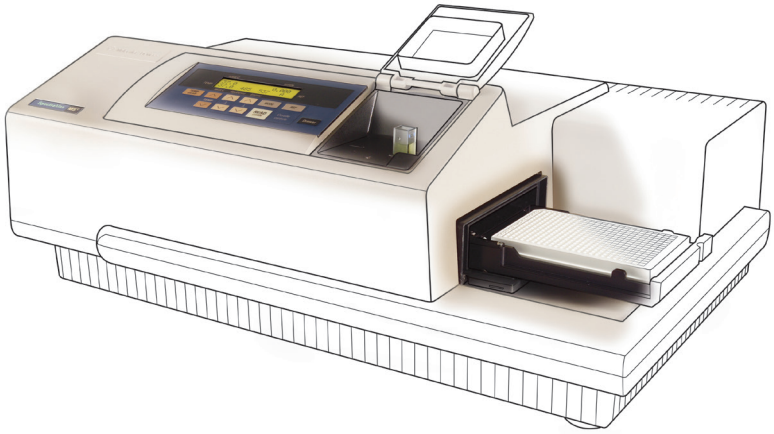
SpectraMax M Series Multi-Mode Microplate Readers



Your applications, your modes, your choice

KEY FEATURES

- Upgradeable platform for changing lab needs
- Three-mode cuvette port for assay development
- Dual monochromator tunability
- Automated absorbance pathlength correction
- Endpoint, kinetic, spectral and well-scanning
- Comprehensive data analysis
- Validation and compliance
- Robotics compatibility



The SpectraMax® M Series Multi-Mode Microplate Readers are modular and upgradeable with a wide range of high performance capabilities ideal for life science research and drug discovery screening.

Choose from a three- (M3), four- (M4), or five- (M5/M5e) mode reader customized to your specific applications or budgetary needs, while optional capabilities allow you to upgrade with other detection modes at a later time. All configurations offer a triple-mode cuvette port, accurate temperature control, microplate shaking and comprehensive data management using our SoftMax® Pro Microplate Data Acquisition and Analysis Software.

Detection modes include:

- UV-Visible Absorbance (Abs)
- Fluorescence Intensity (FI)
- Luminescence (Lum)
- Time-Resolved Fluorescence (TRF)
- Fluorescence Polarization (FP)

The SpectraMax M5e reader offers the additional benefit of being certified for Cisbio Bioassays HTRF® technology.

Dual monochromators for assay flexibility

With SpectraMax M Series readers, there is no need to utilize expensive filters to optimize detection levels and background. The optical systems use two scanning monochromators so the user can determine optimal excitation and emission settings, resulting in assay performance similar to that of dedicated single-mode readers.

Patented pathlength correction for better absorbance accuracy

Only Molecular Devices microplate plate readers offer the capability to measure the depth (optical pathlength) of samples with no temperature dependency using the patented PathCheck® Sensor technology. With SoftMax Pro Software, the PathCheck Sensor automatically normalizes the well absorbance. This eliminates the need for standard curves, and for compounds with known absorptive properties, enables users to calculate concentrations directly from absorbance.

Five-mode microplate reading with superior optics

Unique optical characteristics

1. Reference diodes enable elimination of measurement noise due to slight fluctuations in excitation light intensity.
2. Angled emission beam improves signal-to-noise, especially in narrow Stokes shift fluorophores, by reducing stray light.
3. Elliptical mirrors are used instead of lenses for maximum transmission with minimal wavelength distortion.
4. Top-quality UV-grade fibers give the highest light transmission down to even the lowest wavelengths.

Assay collaboration for ease-of-setup

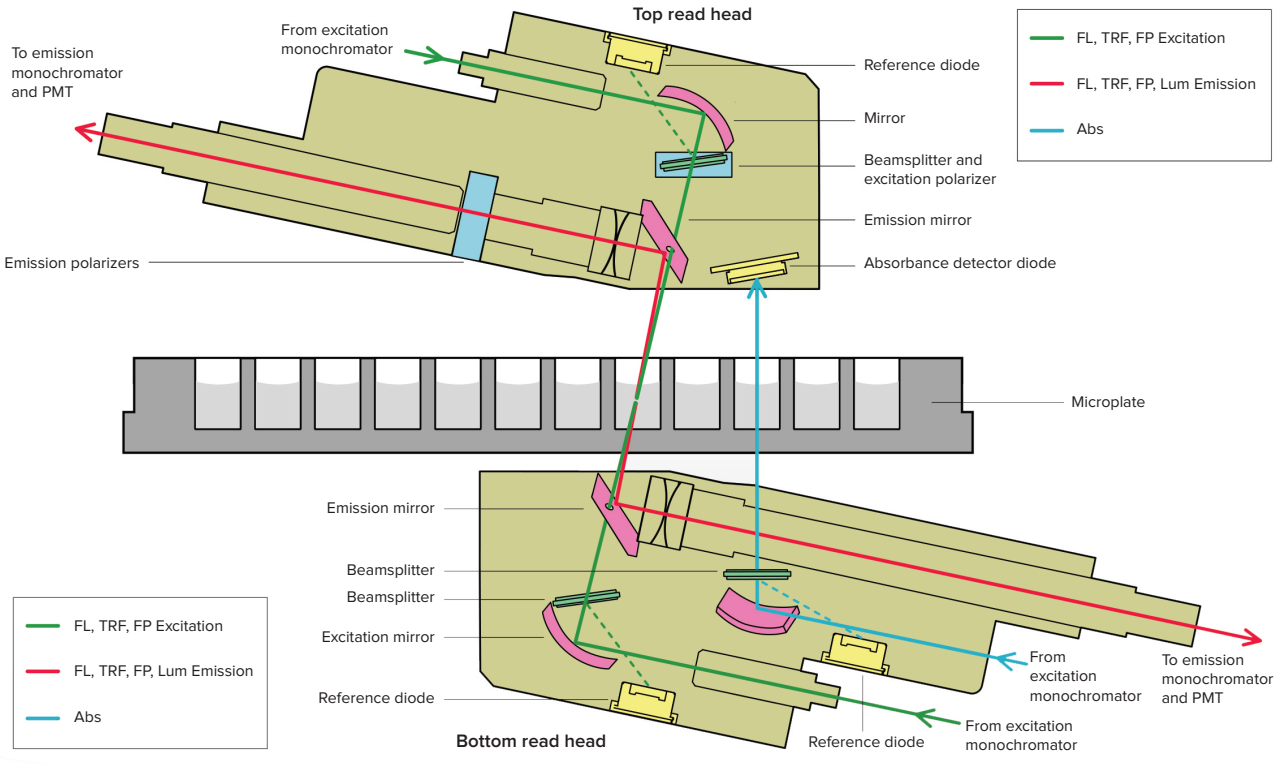
Molecular Devices has collaborated with various assay partners to optimize and validate homogeneous and heterogeneous biochemical- or cell-based assay performance on the SpectraMax platform. To support these assays, we provide application notes as well as ready-to-run protocols in our SoftMax Pro Software. Some of our featured partner assays include HTRF assays from Cisbio Bioassays and LanthaScreen® TR-FRET assays from Invitrogen (now part of Thermo Fisher Scientific Inc.).

IMAP® PLATFORM VALIDATED

LanthaScreen® Certified invitrogen

htrf This reader is HTRF® compatible.

Superior optics for optimal assay performance



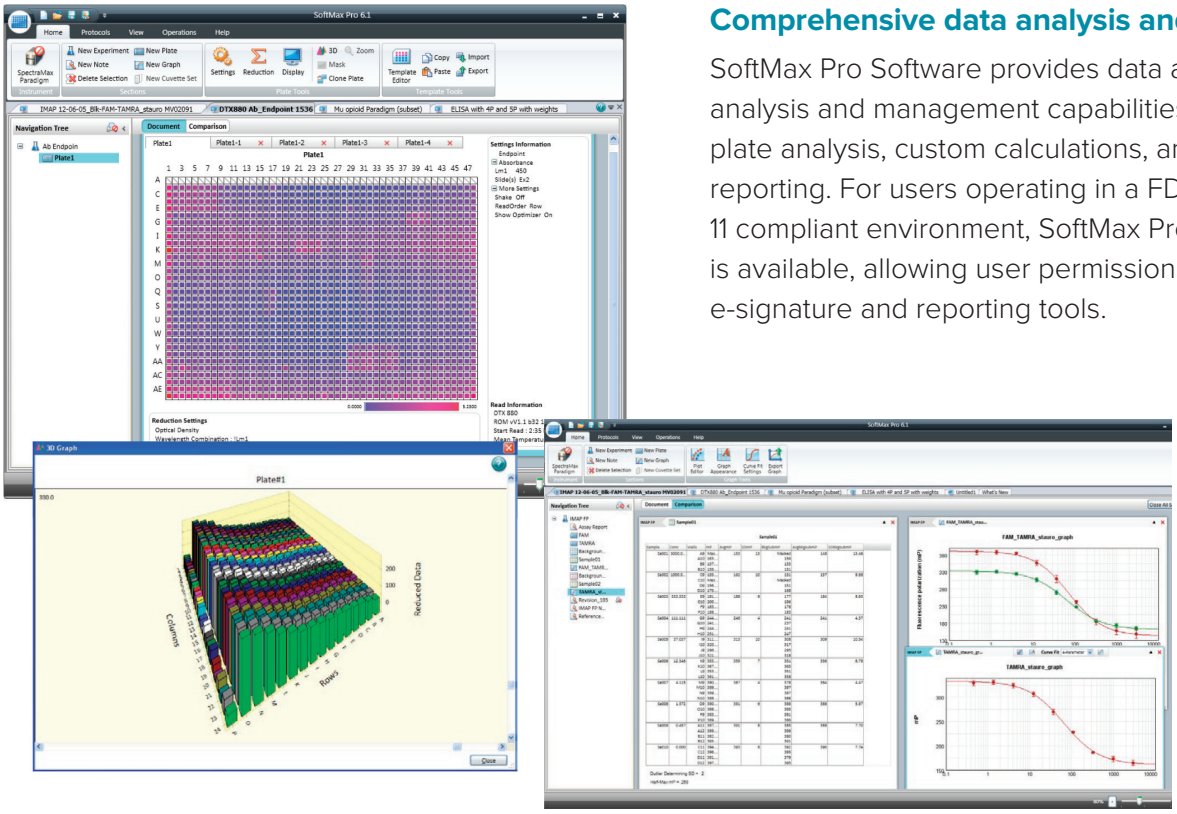
Which SpectraMax M Series reader do you need?

	SpectraMax M3 reader	SpectraMax M4 reader	SpectraMax M5 reader	SpectraMax M5e reader
Detection modes				
Absorbance	✓	✓	✓	✓
Fluorescence intensity	✓	✓	✓	✓
Luminescence	✓	✓	✓	✓
Time-resolved fluorescence		✓	✓	✓
Fluorescence polarization			✓	✓
HTRF				✓
Upgrade options	TRF, HTRF, FP	HTRF, FP	HTRF	N/A
Plate formats				
6-, 12-, 24-, 48-, 96-, 384-well microplates	✓	✓	✓	✓
Certification and validation				
IMAP validation		✓ (TR-FRET only)	✓	✓
HTRF certification				✓
LanthaScreen certification		✓	✓	✓
Key applications				
ADME-Tox	✓	✓	✓	✓
Cell migration assays	✓	✓	✓	✓
Cell viability and cytotoxicity assays	✓	✓	✓	✓
DNA/RNA quantitation	✓	✓	✓	✓
ELISAs	✓	✓	✓	✓
Enzyme kinetics	✓	✓	✓	✓
Fluorescent proteins and FRET	✓	✓	✓	✓
Low volume applications	✓	✓	✓	✓
Membrane permeability	✓	✓	✓	✓
Neurotransmitter transporter uptake assay	✓	✓	✓	✓
Protease assays	✓	✓	✓	✓
Protein assays	✓	✓	✓	✓
QBT fatty acid uptake assay	✓	✓	✓	✓
Reporter gene assays	✓	✓	✓	✓

Ordering information	VWR cat. no.
SpectraMax® M2 Multi-Mode Microplate Reader	MLDVM2
SpectraMax® M2e Multi-Mode Microplate Reader (top and bottom reading)	MLDVM2E
SpectraMax® M3 Multi-Mode Microplate Reader	MLDVM3

Ordering information	VWR cat. no.
SpectraMax® M4 Multi-Mode Microplate Reader	MLDVM4
SpectraMax® M5 Multi-Mode Microplate Reader	MLDVM5
SpectraMax® M5e Multi-Mode Microplate Reader (HTRF certified)	MLDVM5E

Comprehensive software and validation



Comprehensive data analysis and GxP solutions

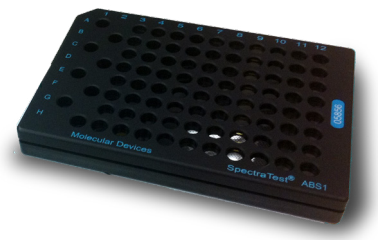
SoftMax Pro Software provides data acquisition, analysis and management capabilities, allowing cross plate analysis, custom calculations, and personalized reporting. For users operating in a FDA 21 CFR Part 11 compliant environment, SoftMax Pro GxP Software is available, allowing user permissions, audit trails, e-signature and reporting tools.

Powerful, user-friendly software. SoftMax Pro Software features over 140 ready-to-use protocols for data acquisition; customizable spreadsheet functionality for analysis; powerful graphing tools for data presentation; and a flexible notes section for concise delivery of critical results.

Validation and compliance of optical characteristics

SpectraMax M Series readers have the most complete level of product validation and compliance. Molecular Devices provides the complete solution covering the instrument and software:

- SpectraTest ABS1, FL1, and LM1 Validation Plates for hardware validation of absorbance, fluorescence, and luminescence modes
- IQ/OQ for all microplate readers
- SoftMax Pro Software Validation Package
- Software tools for FDA 21 CFR Part 11 compliance



Validation test plates for Abs, FI, Lum optical performance. SpectraTest ABS1 Absorbance Plates, FL1 Fluorescence Plates, and LM1 Luminescence Plates are used to validate optical performance of SpectraMax M3, M4, and M5/M5e readers.

Flexibility for your assay needs

Robotics compatibility for increased throughput

SpectraMax M Series readers can be easily integrated with our optional StakMax Microplate Stacker for walk-away processing. Operated from within SoftMax Pro Software, the StakMax Microplate Handler can hold up to 50 plates and facilitates barcode reading.

For more advanced automation needs, Molecular Devices interacts with all of the major lab automation providers, and is one of their leading choices.

StakMax Microplate Handling System. Integrate any SpectraMax Multi-Mode Reader with the StakMax Microplate Handling System from Molecular Devices. The system provides automation for up to 50 microplates for easy walkaway automation. System setup and calibration are controlled from within SoftMax Pro Software.

Highly customizable low volume applications

Molecular Devices unique SpectraDrop Micro-Volume Microplate offers the highest throughput solution for low volume measurement available on the market today. The innovative and flexible design features enable accelerated sample preparation time and increased laboratory productivity in DNA, RNA and protein research. It assures uniform and reproducible analysis and integrates seamlessly with the StakMax Stacker for greater research capacity.

The SpectraDrop Micro-Volume Microplate offers the ability to use as little as 2µL samples with 24- or 64-well plates.

Compatible automation solutions for SpectraMax Readers. SoftMax Pro Software has been integrated by many leading robotics and LIMS partners, enabling both data analysis and instrument control in automated environments.

Technical specifications

General Specifications

Dimensions (in.)	8.6 (H) x 22.8 (W) x 15.3 (D)
Dimensions (cm)	22 (H) x 58 (W) x 39 (D)
Weight	36 lbs. (16.4 kg)
Power consumption	< 420 watts
Power source	100–240 VAC, 3.5 A, 50/60Hz
Robotic-compatible	Yes

General Photometric Performance

Plate formats	6, 12, 24, 48, 96, 384 wells
Light source	Xenon Flash Lamp (1 joule/flash)
Detectors	2 photomultiplier tubes (PMT)
Shaker time	0 to 999 seconds
Temp. control	2°C above ambient to 60°C
Temp. uniformity	< 1°C at 37°C set point
Temp. accuracy	±1°C at 37°C set point
Endpoint reading	All modes
Kinetic reading	All modes
Spectral scanning	All modes
Well scanning	Abs, FI, TRF, Lum

Standard Read Times (minutes:seconds)*	96 wells	384 wells
Absorbance	0:18	0:49
Fluorescence Intensity	0:17	0:48
Fluorescence Polarization	0:42	2:03
Time-Resolved Fluorescence	0:17	0:48
Luminescence	2:00	7:00

Absorbance Photometric Performance

Reading capabilities	Cuvette or microplate
Wavelength range	200–1000 nm
Wavelength selection	Monochromator, tunable in 1.0 nm increments
Wavelength bandwidth	≤ 4.0 nm
Wavelength accuracy	±2.0 nm
Wavelength repeatability	±0.2 nm
Photometric range	0–4.0 OD
Photometric resolution	0.001 OD
Photometric accuracy (microplate)	< ±0.006 OD ±1.0%, 0–2 OD
Photometric accuracy (cuvette)	< ±0.005 OD ±1.0%, 0–2 OD
Photometric precision	< ±0.003 OD ±1.0%, 0–2 OD
Stray light	< 0.05% @ 230 nm

* With 3 flashes/well in absorbance and fluorescence modes, and 1 sec./well integration in luminescence.

** For properly functioning, operated, and maintained equipment.

Technical specifications

Fluorescence Intensity Performance

Reading capabilities	Cuvette or top or bottom of a microplate
Wavelength range	250–850 nm
Wavelength selection	Monochromators, tunable in 1.0 nm increments
Bandwidth (EX, EM)	9 nm, 15 nm
Optimized sensitivity	≤ 1 pM fluorescein in 96 wells, ≤ 1.5pM in 384 wells
Guaranteed sensitivity**	< 5 pM fluorescein in 96 wells or cuvette, < 20 pM in 384 wells

Luminescence Performance

Reading capabilities	Cuvette or top or bottom of a microplate
Wavelength selection	Choice of simultaneous detection of all wavelengths or selection via monochromator, tunable in 1.0 nm increments
Wavelength range	250–850 nm
Optimized sensitivity	≤ 43pM ATP in 96 wells
Guaranteed sensitivity**	≤ 75pM ATP in 96 wells
Dynamic range	> 6 decades
Cross-talk	< 0.3% in white 96- and 384-well microplates

Time-Resolved Fluorescence Performance (M4, M5, M5e only)

Reading capabilities	Top or bottom of a microplate
Wavelength selection	Monochromators, tunable in 1.0 nm increments
Bandwidth (EX, EM)	9 nm, 15 nm
Precision data collection	1–100 flashes, delay of 0–600 µsec. before read, integration time selectable between 50–1500 µsec.
Optimized sensitivity	≤ 10 fM europium in 96
Guaranteed sensitivity**	≤ 100 fM europium in 96 or 384 wells
SpectraMax M5e Reader only	Certified to Cisbio Bioassays HTRF technology performance specifications

Fluorescence Polarization Performance (M5/M5e only)

Wavelength range	300–750 nm
Wavelength selection	Monochromators, tunable in 1.0 nm increments
Bandwidth (EX, EM)	9 nm, 15 nm
Optimized Precision	≤ 3.5 mP standard deviation at 1 nM fluorescein in 96 wells
Guaranteed Precision**	< 5 mP standard deviation at 1 nM fluorescein in 96 wells

The PathCheck Sensor is covered under U.S. Patents 5,959,738, 6,188,476, 6,320,662, 6,339,472, 6,404,501, 6,496,260 and 6,995,844. SpectraMax M3, M4, M5, and M5e Readers are also covered under U.S. Patents 6,097,025 6,232,608, 6,236,456, 6,313,471, 6,316,774, 6,693,709, 6,825,921, and 7,663,755.

Go to **www.vwr.com** for the latest news, special offers and details of your local VWR organisation.

Austria
VWR International GmbH
Graumanngasse 7
1150 Vienna
Tel.: +43 1 97 002 0
Email: info.at@vwr.com

Belgium
VWR International bvba
Researchpark Haasrode 2020
Geldenaaksebaan 464
3001 Leuven
Tel.: +32 (0) 16 385 011
Email: vwr.be@vwr.com

Denmark
VWR International A/S
Tobaksvejen 21
2860 Søborg
Tel.: +45 43 86 87 88
Email: info.dk@vwr.com

France
VWR International S.A.S.
Le Périgares – Bâtiment B
201, rue Carnot
94126 Fontenay-sous-Bois cedex
Tel.: 0 825 02 30 30* (national)
Tel.: +33 (0) 1 45 14 85 00 (international)
Email: info.fr@vwr.com
* 0,18 € TTC/min

Germany
VWR International GmbH
Hilpertstraße 20a
D - 64295 Darmstadt
Tel.: 0800 702 00 07* (national)
Tel.: +49 (0) 6151 3972 0 (international)
Email: info.de@vwr.com
*Freecall

Ireland / Northern Ireland
VWR International Ltd /
VWR International (Northern Ireland) Ltd
Orion Business Campus
Northwest Business Park
Ballycoolin
Dublin 15
Tel.: +353 (0) 1 88 22 222
Email: sales.ie@vwr.com

The Netherlands
VWR International B.V.
Postbus 8198
1005 AD Amsterdam
Tel.: +31 (0) 20 4808 400
Email: info.nl@vwr.com

Sweden
VWR International AB
Fagerstagatan 18a
163 94 Stockholm
Tel.: +46 (0) 8 621 34 00
Email: kundservice.se@vwr.com

Switzerland
VWR International GmbH
Lerzenstrasse 16/18
8953 Dietikon
Tel.: +41 (0) 44 745 13 13
Email: info.ch@vwr.com

UK
VWR International Ltd
Customer Service Centre
Hunter Boulevard - Magna Park
Lutterworth
Leicestershire
LE17 4XN
Tel.: +44 (0) 800 22 33 44
Email: uksales@vwr.com

10/18 0120-1498G-EU/VWR