

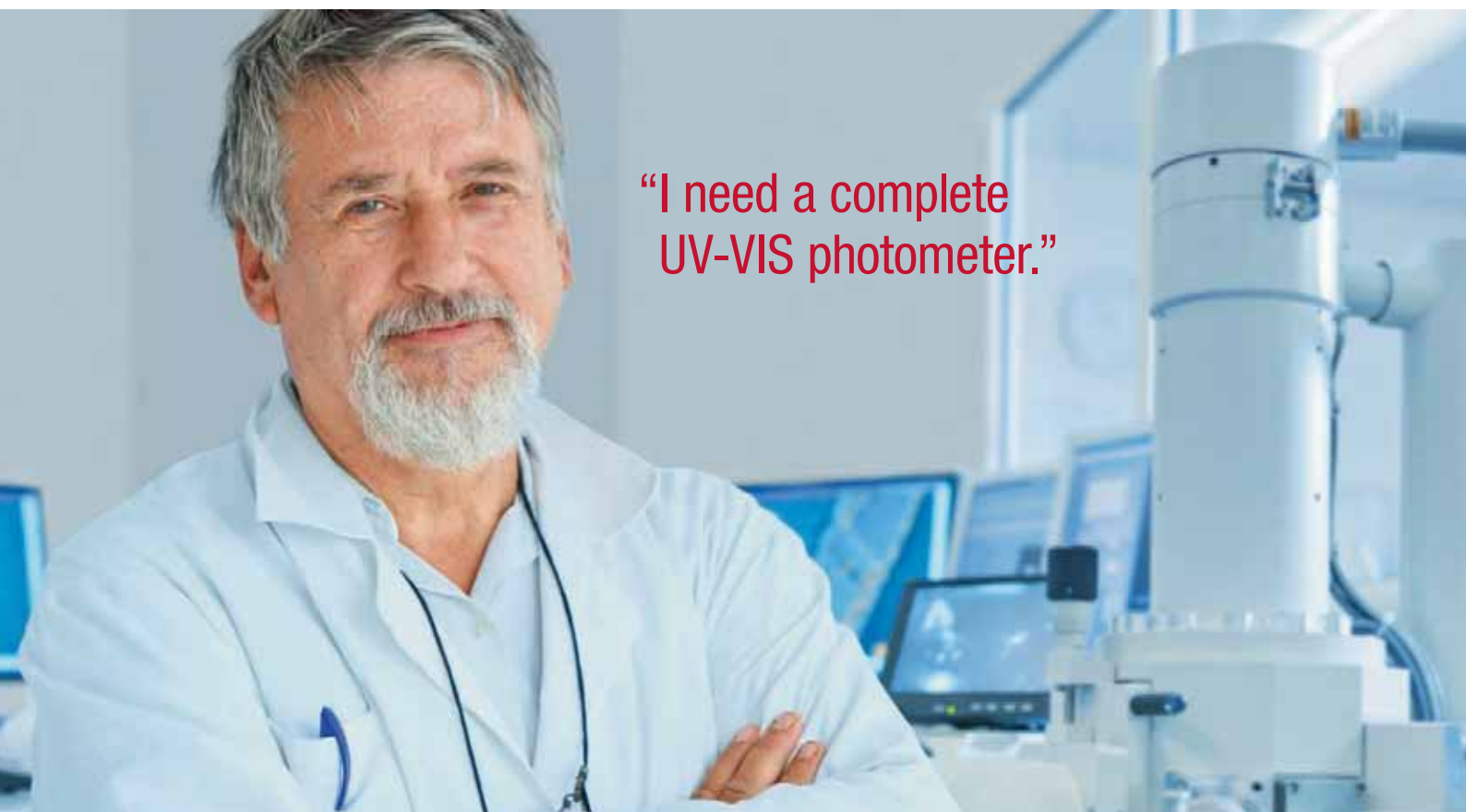


Diving into a new dimension: Quality meets efficiency

DR 6000 UV-VIS spectrophotometer

Combining quality and cost-effectiveness

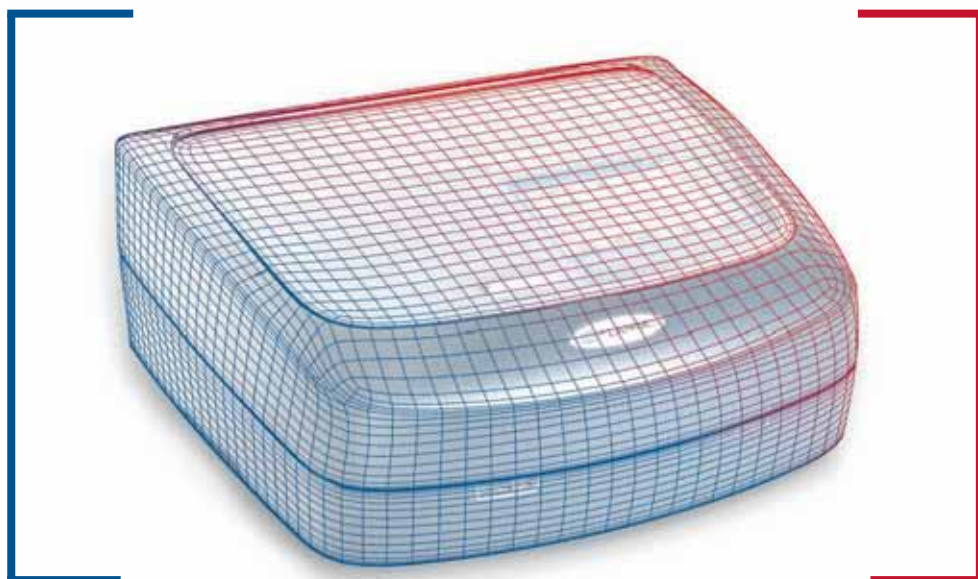
The new DR 6000 UV-VIS spectrophotometer delivers top performance for both routine laboratory tasks and demanding photometry applications.



“I need a complete
UV-VIS photometer.”

The new fourth generation DR 6000 is engineered and manufactured in Germany to deliver exceptional analytical accuracy. The Czerny-Turner monochromator design reduces aberrations and guarantees a spectral bandwidth of <2 nm. The output coupler mirror optimally aligns the measurement beam.

Four sequential band-pass filters reduce internal scattered light to $<0.05\%$ and allow the detection of measurement signals in the range of ± 3 Abs. The reference beam technology compensates for signal fluctuations in the instrument. Two low-noise silicon detectors ensure high selectivity and basic stability of the measurement signal.



Quality
+
Efficiency

Improved laboratory efficiency

The new DR 6000 UV-VIS spectrophotometer unites reliable results with efficiency. The intuitive menu navigation with the 7" colour touchscreen allows you to enter and calibrate your own methods in just a few simple steps. To help you save time, the instrument is pre-programmed with 240 methods including TOC, surfactants and nutrient parameters.

Application packages, e. g. for enzymology and colorimetry, open up further application opportunities to you, including drinking water and brewery analysis. By combining fast scans and simple LIMS integration, the DR 6000 enables laboratories to work at peak efficiency.



“For me, quality and cost-effectiveness must be right.”

Reliable results from the cuvette

Ready-to-use reagents from HACH LANGE guarantee quality and are officially recognised as an equivalent alternative to the standard method.

Independent round robin tests show that the results of cuvette tests are comparable with those of standard methods. Due to this HACH LANGE ISO-COD test carries the ISO seal.


Your benefit: comparability of results

The ready-to-use, high-precision pre-dosed cuvette tests guarantee the most reliable results. The coordinated system of reagents and the DR 6000 photometer considerably reduces the number of working steps. The integrated masking of matrix interference guarantees a broad application spectrum. The DR 6000 detects the cuvettes immediately upon insertion and automatically calls up the corresponding calibration curve. One further plus of the cuvette tests is the RFID identification which documents the shelf life of the cuvettes and ensures the traceability of your analyses.

Your benefit: dependable and reliable results



ISO 15705



“Is there an equivalent alternative to my standard analysis?”

**“I must be able to trust
my results at all times.”**

Transparent working processes in every situation

The DR 6000 is fully automated. Nevertheless, it allows you to monitor all steps of the processes – even with the use of cuvette tests. With the DR 6000, you can access the calibration data, the batch number, the measurement process and the raw data at any time. All data can be called up with one key press for verification on the large display.

For quality assurance RFID identification is used to read and transfer batch certificates, quality data and target values for standards.

Your benefit: transparency in the process



Your Standard Control Chart is available at all times.

Finally time for what is important

The DR 6000 is efficient, simple to use and helps you save time for all standard and application specific analyses.



“We have integrated
all measuring
instruments into
LIMS.”

The optimised data management and simple operation of the DR 6000 save valuable time. For data processing the DR 6000 has three USB ports and an Ethernet interface for fast data retrieval and real-time data transfer. The DR 6000 is LIMS-compatible (Laboratory Information Management System).

In addition the intuitive user navigation via icons and plaintext prompts on the large display reduces training requirements to a minimum and makes the DR 6000 easy to operate for your team.

Your benefit: optimised data management



“Only when everything fits are the measurement values also correct.”

Systematic quality and efficiency

Only a perfect interaction guarantees the highest efficiency and accuracy – starting with the individual components of the DR 6000 up to the interaction with you and your laboratory equipment. HACH LANGE delivers to you a perfectly coordinated system – as a developer, manufacturer, and sales and service partner.



— Cuvette test in standard-comparable quality

— ADDISTA standards, spiking and round robin test solutions

— Test filter set for internal quality control

— LT 200 thermostat for digestions

— Sipper module for serial analysis

— Application software, e. g. for drinking water and breweries

— Carousel holder, e. g. for enzymology



Service packages and extended warranty up to 5 years



Assurance of legal compliance, together with environmental protection via collection service for recycling of used reagents

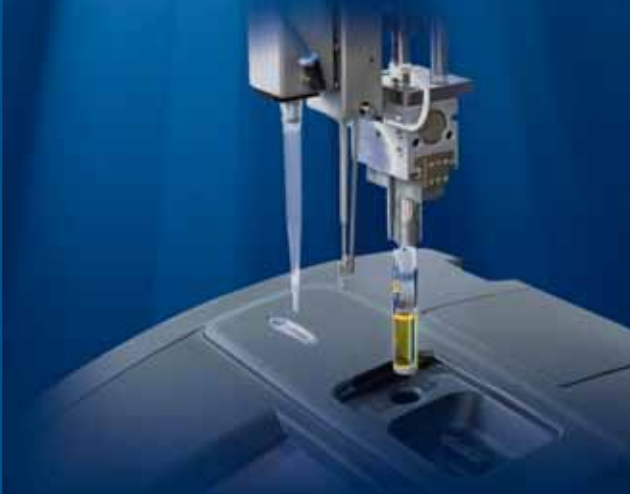


Seminars and workshops: Practical and hands on training

DR 6000 UV-VIS technical data

Display mode	Transmission (%), absorbance, concentration
Optics	Deuterium lamp (UV), halogen lamp (VIS), Czerny-Turner monochromator, silicon photodiode detector
Wavelength range	190–1100 nm
Wavelength accuracy	±1 nm (200–900 nm)
Wavelength reproducibility	<0.1 nm
Wavelength resolution	0.1 nm
Scan speed	900 nm/min (in 1-nm increments)
Spectral bandwidth	2 nm (1.5–2.9 nm at 656 nm, 1 nm at the D2 line)
Photometric measurement range	±3 Abs (200–900 nm)
Photometric accuracy	5 mAbs at 0.0–0.5 Abs, <1% at 0.5–2.0 Abs at 546 nm
Photometric linearity	<0.5% to 2 Abs, ≤1% at >2 Abs with neutral glass at 546 nm
Scattered light	KI solution at 220 nm <3.3 Abs / <0.05%
Photometric drift	±0.0034 Abs
Long-term stability	Zero point at 546 nm for 10 hours ≤0.0034 Abs
Measurement technology	Reference beam technology for compensation of lamp ageing and mains fluctuations
Modules	Adapter for rectangular cells (10 mm, 20 mm, 50 mm, 1 inch) and round cells (1 inch); carousel holder for seven rectangular cells (10 mm), e.g. for enzymology; sipper module for pour-through cells
Test recognition	IBR+ barcode reading system for automatic recognition of 2D barcode cuvette tests
Data storage	5000 measurement values, 50 scans, 50 time intervals
User programmes	200
Dimensions / weight	215 × 500 × 460 mm (H × W × D) / 11 kg
Interfaces	2 × USB type A, 1 × USB type B, 1 × Ethernet

For large samples use the Laboratory Robot to achieve fully automated sample preparation and cuvette testing.



LANGE 

UNITED FOR WATER QUALITY

DR 3900™ SPECTROPHOTOMETER

Applications

- Beverage
- Drinking Water
- Wastewater
- Food QC Lab
- Power



Prevent measurement errors...simply.

The proven technology you have come to expect from Hach just got better. Built with the future of water analysis in mind, the DR 3900 will give consistently accurate results in a simpler testing format.

Guided Procedure

The DR 3900 guides you step-by-step through the testing procedure like a GPS, so you can get the accurate results you need every time.

Elimination of False Readings

Scratched, flawed, or dirty glassware becomes a non-issue when your machine takes 10 readings and eliminates outliers.

Hands Free Updates*

RFID technology automatically updates the program calibration factors when you place a TNTplus box near the machine.

Flexible Connectivity

Built with 1 ethernet and 3 USB ports, the DR 3900 easily connects to your computer and is programmed to easily interface with Hach WIMS™ or any LIMS system.

Sample Tracking*

Sample bottles with smart tags can easily be tracked with the optional Hach RFID sample-ID system, eliminating sample mix-ups and providing better sample traceability.

*RFID technology currently available only in US, Anguilla, American Samoa, Australia, Bolivia, Canada, Cayman Islands, Columbia, Dominican Republic, El Salvador, Federated States of Micronesia, Guam, Guatemala, Marshall Islands, New Zealand, Northern Mariana Islands, Palau, Panama, Puerto Rico, and US Virgin Islands.



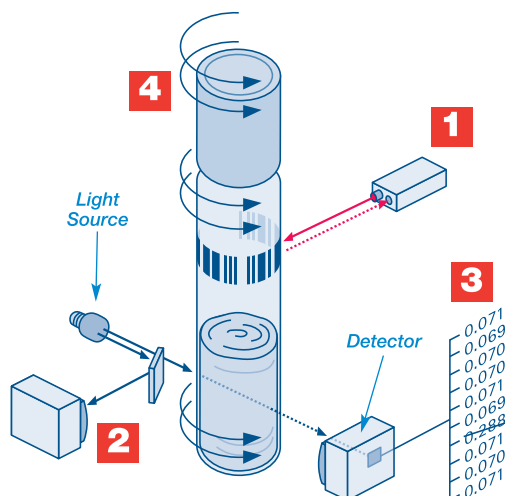
Specifications*

Operating Mode	Transmittance (%), Absorbance and Concentration, Scanning	Data Logger	2000 measured values (Result, Date, Time, Sample ID, User ID)
Light Source	Gas-filled Tungsten (visible)	Preprogrammed Methods	> 240
Optical System	Reference beam, spectral	User Programs	100
Wavelength Range	320 to 1100 nm	Sample Cell Compatibility	13 mm round, 16 mm round, 1 cm & 5 cm rectangular, 1 round, 1 square
Wavelength Accuracy	± 1.5 nm (wavelength range 340 to 900 nm)	Dimensions (H x W x D)	5.9 in x 13.8 in x 10 in (151 mm x 350 mm x 255 mm)
Wavelength Reproducibility	± 0.1 nm	Weight	9.26 lbs. (4.2 kg)
Wavelength Resolution	1 nm	Operating Conditions	10 to 40 °C
Wavelength Calibration	Automatic	Storage Conditions	-30 to 60 °C
Wavelength Selection	Automatic, based on method selection	Enclosure Rating	IP30
Spectral Bandwidth	5 nm	Power Supply	Benchtop Power Supply
Photometric Measuring Range	± 3.0 Abs (wavelength range 340 to 900 nm)	Power Requirements (Voltage)	110 - 240 V AC
Photometric Accuracy	5 mAbs at 0.0 to 0.5 Abs 1 % at 0.50 to 2.0 Abs	Power Requirements (Hz)	50/60 Hz
Photometric Linearity	< 0.5 % to 2 Abs ≤ 0.01 % at >2 Abs with neutral glass at 546 nm	Interfaces	USB type A (2), USB type B, Ethernet, RFID module
Stray Light	< 0.1 % T at 340 nm with NaNO ₂	Warranty	12 months
Display	7 TFT WVGA (800 pix x 480 pix)		<i>*Subject to change without notice.</i>

Principle of Operation

Hach's TNTplus chemistries and spectrophotometers are made to work seamlessly with each other.

- Many of the tests are EPA compliant.
- Over 35 tests available including these popular EPA Approved Parameters:
 - Ammonia
 - COD
 - Chlorine
 - Chromium
 - Iron
 - Nitrate
 - Nitrite
 - Nitrogen
 - Phosphorus
 - Sulfate



How TNTplus Works

1 Barcode Recognition

Simply drop in the vial and get results immediately with automatic method detection.

2 Reference Detector

Monitors and compensates for optical fluctuations.

3 10X Measurement and Outlier Elimination

Dirty, scratched, or flawed glassware, including fingerprints, is no longer an issue—instrument averages 10 readings and rejects outliers.

4 Self-Contained Packaging—Reagents Inside Sealed Cap

Reduces exposure to chemicals—no need to open pillows or clean glassware.

See our TNTplus video at: www.hach.com/tntplus

Available Tests

The following table lists available tests and overall ranges for the Hach DR 3900 Benchtop Spectrophotometer. The ranges may represent more than one available test for the instrument. Consult your Hach representative, Customer Service, the Hach Master Catalog, or the Hach web site at www.hach.com for complete details of all available tests for this instrument.

Parameter	Range	TNTplus Test	Parameter	Range	TNTplus Test
Alachlor	0.1 to 0.5 ppb, threshold		Lead	3 µg/L to 2.0 mg/L	•
Alkalinity, Total	25 to 400 mg/L	•	Manganese	0.006 to 20.0 mg/L	
Aluminum	0.002 to 0.800 mg/L	•	Mercury	0.1 to 2.5 µg/L	
Ammonia, Nitrogen	0.015 to 50.0 mg/L	•	Methylethylketoxime (MEKO)	15 to 1000 µg/L	
Arsenic	0.020 to 0.200 mg/L		Molybdenum, Molybdate	0.02 to 40.0 mg/L	
Atrazine	0.5 to 3.0 ppb, threshold		Nickel	0.006 to 6.0 mg/L	•
Barium	2 to 100 mg/L		Nitrate, Nitrogen	0.01 to 35 mg/L	•
Benzotriazole	1.0 to 16.0 mg/L		Nitrite, Nitrogen	0.002 to 250 mg/L	•
Boron	0.2 to 14.0 mg/L		Nitrogen, Simplified Total Kjeldahl	0 to 16 mg/L	•
Bromine	0.05 to 4.50 mg/L		Nitrogen, Total	0.5 to 150 mg/L	•
Cadmium	.7 µg/L to 0.30 mg/L	•	Nitrogen, Total Inorganic	0.2 to 25.0 mg/L	
Carbohydrazide	5 to 600 µg/L		Nitrogen, Total Kjeldahl	1 to 150 mg/L	
Chloramine, Mono	0.04 to 10.0 mg/L		Ozone	0.01 to 1.50 mg/L	
Chloride	0.1 to 25.0 mg/L		PCB (Polychlorinated Biphenyls)	1 to 50 ppm, threshold	
Chlorine Dioxide	0.01 to 1000 mg/L		Phenols	0.002 to 0.200 mg/L	
Chlorine, Free	0.02 to 10.0 mg/L	•	Phosphonates	0.02 to 125.0 mg/L	
Chlorine, Total	2 µg/L to 10.0 mg/L	•	Phosphorus, Acid Hydrolyzable	0.06 to 100.0 mg/L	
Chromium, Hexavalent	0.010 to 1.00 mg/L	•	Phosphorus, Reactive (Orthophosphate)	19 µg/L to 100.0 mg/L	•
Chromium, Total	0.01 to 0.70 mg/L	•	Phosphorus, Total	0.06 to 100.0 mg/L	•
Cobalt	0.01 to 2.00 mg/L		Potassium	0.1 to 7.0 mg/L	
Color	3 to 500 units		Quaternary Ammonium Compounds	0.2 to 5.0 mg/L	
COD (Chemical Oxygen Demand)	0.7 to 15,000 mg/L	•	Selenium	0.01 to 1.00 mg/L	
Copper	1 µg/L to 8.0 mg/L	•	Silica	3 µg/L to 100 mg/L	
Cyanide	0.002 to 0.240 mg/L		Silver	0.005 to 0.700 mg/L	
Cyanuric Acid	5 to 50 mg/L		Sulfate	2 to 900 mg/L	•
DEHA (Diethylhydroxylamine)	3 to 450 µg/L		Sulfide	5 to 800 µg/L	
Dissolved Oxygen	6 µg/L to 40 mg/L		Surfactants, Anionic	0.002 to 0.275 mg/L	
Erythorbic Acid (Isoascorbic acid)	13 to 1500 µg/L		Suspended Solids	5 to 750 mg/L	
Fluoride	0.02 to 2.00 mg/L		Tannin and Lignin	0.1 to 9.0 mg/L	
Formaldehyde	3 to 500 µg/L		TOC (Total Organic Carbon)	0.3 to 700 mg/L	
Hardness, Total (Calcium and Magnesium as CaCO ₃)	4 µg/L to 4.00 mg/L		Tolyltriazole	1.0 to 20.0 mg/L	
Hydrazine	4 to 600 µg/L		Toxicity	0 to 100% Inhibition	
Hydroquinone	9 to 1000 µg/L		TTHM (Trihalomethanes, Total)	10 to 600 µg/L	
Iodine	0.07 to 7.00 mg/L		TPH (Total Petroleum Hydrocarbons)	2 to 200 ppm, threshold	
Iron, Ferrous	0.02 to 3.00 mg/L		Volatile Acids	27 to 2800 mg/L	•
Iron, Total	0.009 to 6.0 mg/L	•	Zinc	0.01 to 3.00 mg/L	

Ordering Information

DR 3900 Benchtop Spectrophotometer; includes adapter A for 1 round + AccuVac/1 cm rectangular cuvettes, manual, CD with manual and procedure manual in .pdf format. Power Supply. RFID version available only in a limited number of countries, including US, Australia, Bolivia, Canada, Guatemala, and New Zealand. For complete information, visit hach.com or contact your sales representative.

- LPV440.99.00012** DR 3900 Spectrophotometer with RFID Technology, 110 - 240V
LPV440.99.00002 DR 3900 Spectrophotometer without RFID Technology, 110 - 240V

Accessories

- LZV537** Test Filter Set
LZV873 Ethernet cable
LZV566 USB Barcode Scanner
LZV582 USB Keyboard
2960100 Thermo Printer

Service Options

Comprehensive warranty upgrade includes: All parts, labor, and shipping costs from the factory for depot repairs. One calibration per year on-site, factory recommended maintenance (including required parts), unlimited technical support calls. Also includes a loaner* while waiting for your factory repair. Please see service terms and conditions for additional details.

**Based on availability*

- WRTUPGDR3900** DR 3900 Spectrophotometer WarrantyPlus™ Instrument Protection and Service



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Hach Company reserves the right to alter specifications to equipment at any time.



Be Right™