

## BioLogic QuadTec™ UV/Vis Detector

Monitor Complex Samples at  
Four Wavelengths Simultaneously

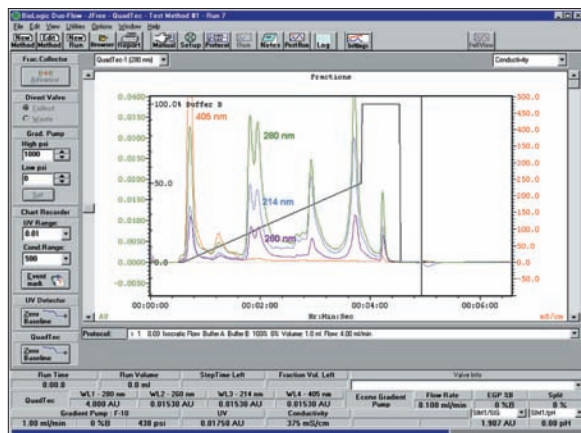


# Increase Your Throughput

With Four Wavelengths Simultaneously



The BioLogic QuadTec UV/Vis detector makes post-run spectrophotometric fraction checks a thing of the past. One pass through the flow cell identifies multiple absorbing components in your sample. Using the BioLogic QuadTec UV/Vis detector to track up to four wavelengths simultaneously, you gain more information about your fractions online and in real time, without spending valuable time on more assays.



Analysis of a protein sample of equine myoglobin, conalbumin, chicken ovalbumin, and soybean trypsin inhibitor on the BioLogic QuadTec detector with selected wavelengths of 280 nm (green trace), 260 nm (magenta), 214 nm (light blue), and 405 nm (gold). Separation was on an UNO<sup>®</sup> Q1 anion exchange column.

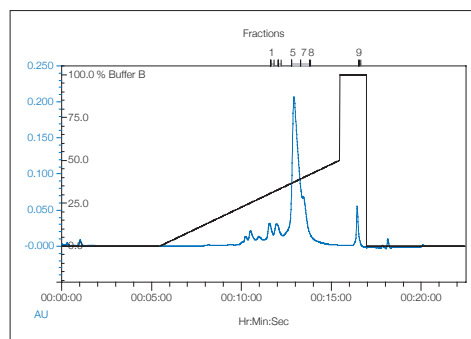
## The BioLogic QuadTec UV/Vis Detector Enhances the Capabilities of the BioLogic DuoFlow™ System by:

- Simultaneously distinguishing eluted components that absorb at different wavelengths, which allows:
  - Detection of peptides and proteins at 214 nm, DNA at 260 nm, protein at 280 nm, and heme groups at 405 nm
  - Detection of proteins at 245 nm rather than 280 nm to avoid absorbance by Triton X-100
  - Increased sensitivity by monitoring proteins and peptides at 214 and 224 nm
- Providing the standard deuterium lamp needed for the most common applications, so you purchase only the lamp needed for your applications
- Allowing easy user installation of an optional halogen lamp for applications in the visible range of 370–740 nm
- Making all lamps user installable, prealigned, and automatically calibrated to maximize flexibility of use
- Eliminating second-order light with a unique drop-down filter that expands the detection range to 500 nm to include myoglobin and carotenoids

# Software

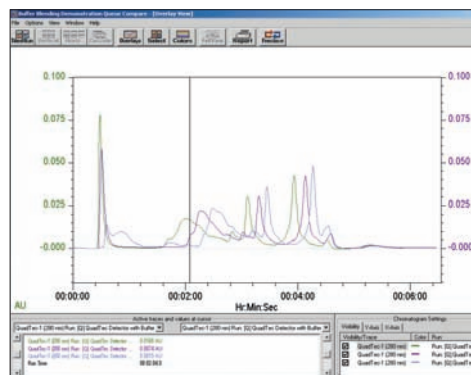
BioLogic DuoFlow software version 5.2 and above integrates support for the BioLogic QuadTec UV/Vis detector with functions such as:

- Viewing of up to 8 chromatogram traces at a time, including up to 4 BioLogic QuadTec UV/Vis traces, % B theoretical gradient, conductivity programmed gradient, system pressure, UV detector at 254 nm or 280 nm, pH monitor, and other external detectors
- Peak cutting by threshold, using any signal from the BioLogic QuadTec detector, to collect known fractions of interest, reduce the number of collected fractions, and eliminate collection of minor peaks that may contaminate major peaks
- The Trace Compare feature, available in version 4.0 and higher, which allows convenient comparison of multiple detector traces from numerous sample runs



**Ion exchange with threshold detection.**

Purification of REC150 on an UNO® Q1 column; fractions collected using a threshold of 0.025 AU at 280 nm.



**Comparison of three chromatography runs using Trace Compare.**

Runs were performed at pH 6.8, 7.5, and 8.1 on an UNO Q1 column.

## Wavelength Selection Guide for Typical Biological Molecules

Wavelength, nm	Absorbing Species	Applications	Comments
206	Carboxyl groups, ester links, amide or peptide bonds	Proteins, peptides, amino acids, steroids, nucleotides, fatty acids, carbohydrates	Virtually all biological macromolecules will absorb at this wavelength. Detection at this wavelength will give high sensitivity or permit the detection of compounds that do not absorb at other wavelengths. Some buffers cause a problem with background absorbance
214	Peptide bonds	Peptides, proteins	This wavelength allows use of buffers that might be problematic at 206 nm and yet yields much more sensitivity than 280 nm
224	Peptide bonds	Peptides, proteins	Monitoring this wavelength detects any compound with peptide bonds. It is less sensitive than detection at shorter wavelengths but more sensitive than at 280 nm. It is used when background absorbance by many buffers at 206 nm becomes an issue
245		Proteins in the presence of Triton X-100	Triton X-100 absorbs strongly at 280 nm and may mask true protein absorbance at that wavelength
254	Nucleotides	Nucleotide bases, DNA, RNA	These are the best wavelengths for detection of nucleic acids
260			
280	Aromatic amino acids	Proteins	This is the traditional wavelength for protein detection and therefore the most frequently used by the biochemist. Aromatic amino acids (i.e., tryptophan, tyrosine, and phenylalanine), absorb best at this wavelength so proteins with few of these amino acids may not absorb as strongly as expected
313	Conjugated ring systems	Certain vitamins, antibiotics	
365	Conjugated ring systems	Some steroids, NADH, NADPH, flavoproteins, bacteriochlorophylls	Flavoproteins exhibit absorption maxima at 280 nm, 350–380 nm, and 450 nm. Reduction of the flavin eliminates the absorption at 450 nm
405	Heme groups	Myoglobin	
550		Cytochromes	Reduced cytochrome c absorbs at 550 nm

## Specifications

Lamp	Standard deuterium UV lamp for wavelength range 190–370 nm Optional halogen visible lamp for wavelength range 370–740 nm Prealigned; automatic calibration upon installation
Flow cell	3 mm PEEK, 2 µl (standard); 2 mm PEEK high speed (optional for flow rate up to 80 ml/min)
Wavelength accuracy	±1 nm
Bandwidth	8 nm
Noise	1 x 10 <sup>-5</sup> AU at 240 nm
Sensitivity	2 x 10 <sup>-5</sup> AU at 240 nm
Drift	1 x 10 <sup>-5</sup> AU/hr at 240 nm
Weight	5.5 kg
Dimensions	16 x 18.5 x 34 cm (W x H x D)

## Ordering Information

Catalog # Description

### BioLogic QuadTec Detector

The BioLogic QuadTec UV/Vis detector is designed to monitor four wavelengths on BioLogic DuoFlow chromatography systems; in addition, it adds the capability of monitoring two wavelengths on the BioLogic™ HR or any other chromatography system.

760-1300 **BioLogic QuadTec Detector Kit**, includes QuadTec detector with 3 mm PEEK flow cell, instrument control module (ICM), system cables 25, 26, and 17 (QuadTec RS-232, ICM power, and bus communication), software CD, US power cord, instructions

Catalog # Description

### Accessories and Spare Parts

760-1330 **Deuterium Lamp**, replacement  
760-1331 **Halogen Lamp**, with holder for first-time halogen lamp change  
760-1332 **Halogen Lamp**, replacement  
760-1306 **Standard Flow Cell**, 3 mm pathlength  
760-1406 **Flow Cell, high speed**, 3 mm pathlength flow rate to 80 ml/min with fittings  
760-1311 **10-32 Fingertight Fittings**, 4, for PEEK and Tefzel system tubing  
750-0650 **System Cable 17**, bus communication cable, 4' (1.2 m)  
760-1309 **System Cable 24**, (QuadTec Analog), includes 2 cables, connects QuadTec detector to SIM  
760-1307 **System Cable 25**, (QuadTec RS-232), connects QuadTec detector to ICM  
760-1321 **System Cable 26**, (ICM Power), connects QuadTec detector to 12 V power on DuoFlow workstation  
760-1320 **Instrument Control Module (ICM) Kit**, includes ICM power cable and cable 17

For more information about this detector or for a demonstration, contact your local Bio-Rad representative or call 1-800-4BIORAD (1-800-424-6723). Visit us on the Web at [www.bio-rad.com](http://www.bio-rad.com).

PEEK is a trademark of Victrex PLC. Tefzel is a trademark of E. I. du Pont de Nemours and Co.

Triton is a trademark of Union Carbide Chemicals and Plastics Technology Corp.

**BIO-RAD**

**Bio-Rad  
Laboratories, Inc.**

Life Science  
Group

Web site [www.bio-rad.com](http://www.bio-rad.com) USA 800 424 6723 Australia 61 2 9914 2800 Austria 01 877 89 01 Belgium 09 385 55 11 Brazil 55 31 3689 6600  
Canada 905 364 3435 China 86 20 8732 2339 Czech Republic 420 241 430 532 Denmark 44 52 10 00 Finland 09 804 22 00 France 01 47 95 69 65  
Germany 089 31 884 0 Greece 30 210 777 4396 Hong Kong 852 2789 3300 Hungary 36 1 459 6100 India 91 124 4029300 Israel 03 963 6050  
Italy 39 02 216091 Japan 03 6361 7000 Korea 82 2 3473 4460 Mexico 52 555 488 7670 The Netherlands 0318 540666 New Zealand 0508 805 500  
Norway 23 38 41 30 Poland 48 22 331 99 99 Portugal 351 21 472 7700 Russia 7 495 721 14 04 Singapore 65 6415 3188 South Africa 27 861 246 723  
Spain 34 91 590 5200 Sweden 08 555 12700 Switzerland 061 717 95 55 Taiwan 886 2 2578 7189 United Kingdom 020 8328 2000