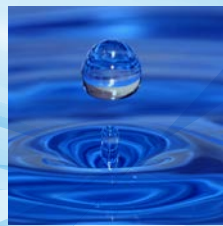
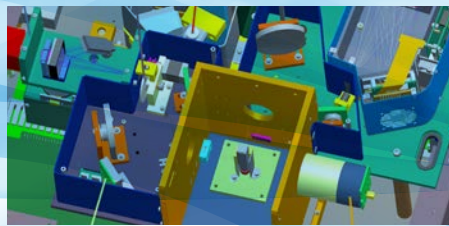
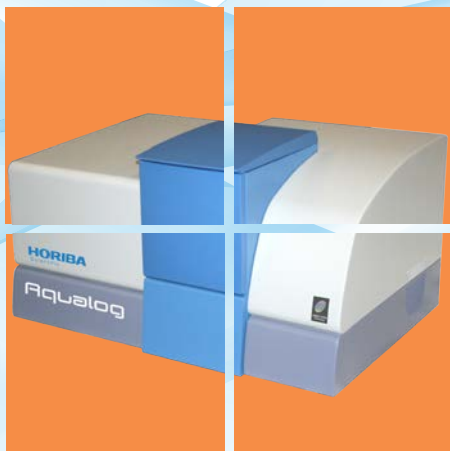
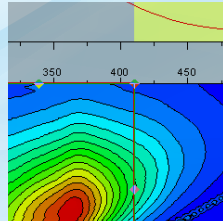


Aqualog[®]

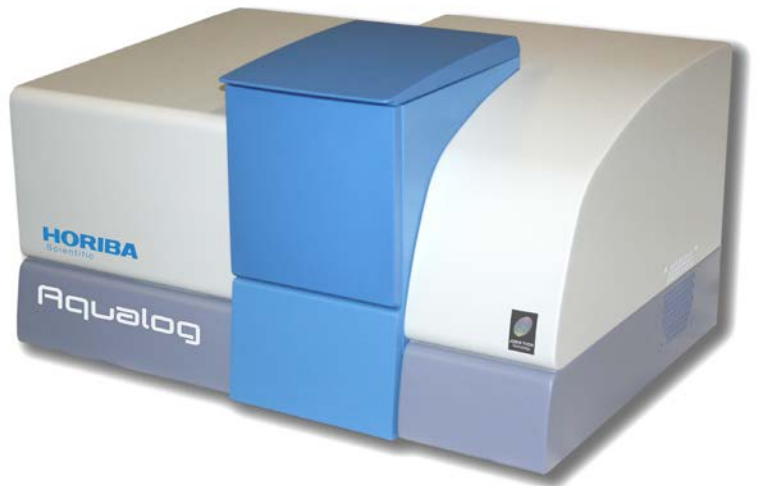
CDOM Measurements made easy



Simultaneous absorbance and fluorescence system for water quality analysis

www.aqualog.com





Water quality measurements made easy



The only simultaneous absorbance and fluorescence system for water quality analysis!



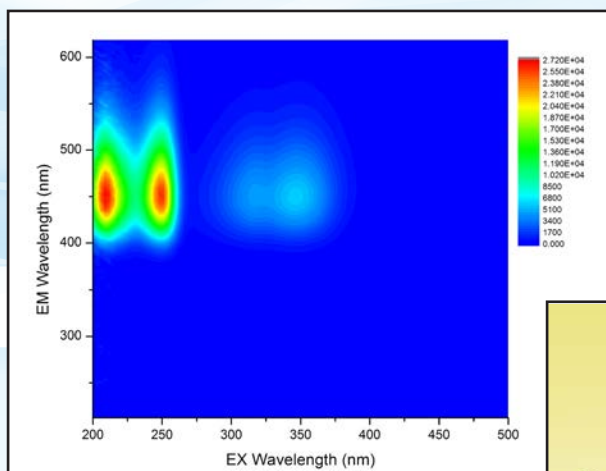
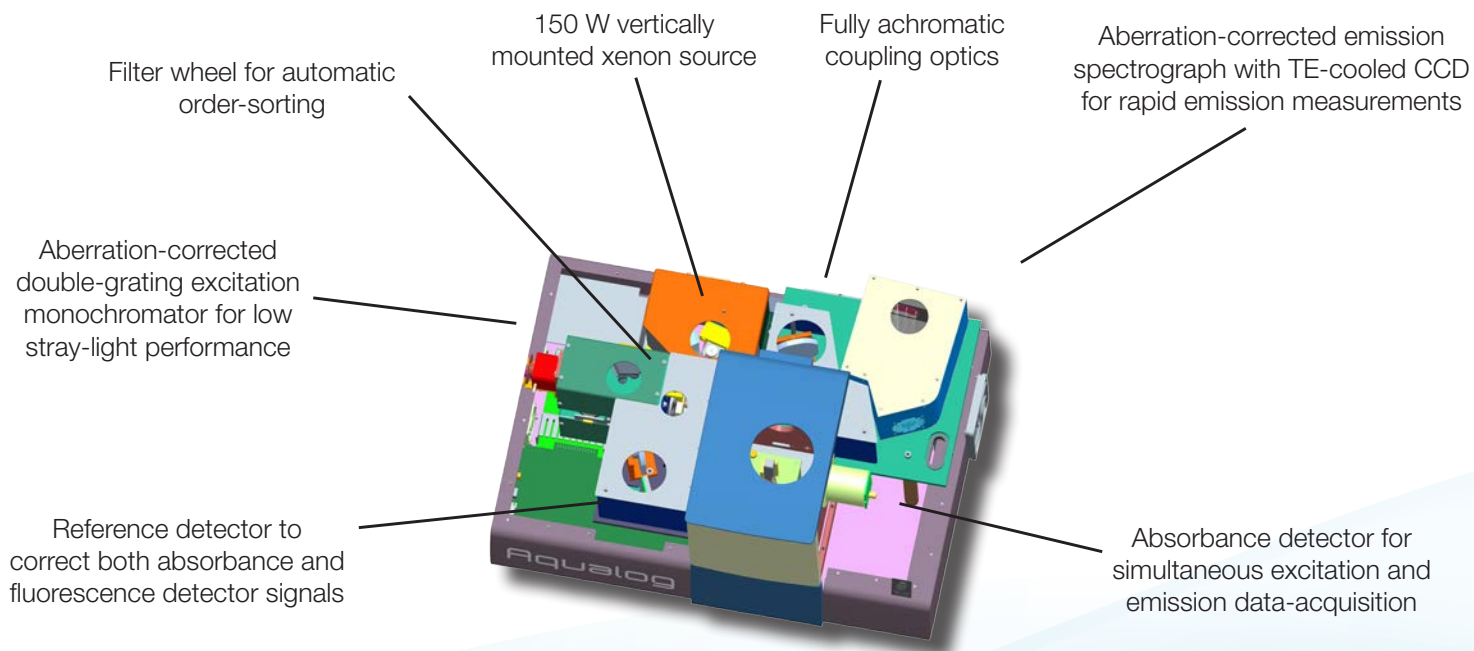
The new Aqualog[®] is the only instrument to simultaneously measure both absorbance spectra and fluorescence Excitation-Emission Matrices. EEMs are acquired up to 100 times faster than with other instruments. Dedicated software automates traceable Quinine Sulfate Unit calibration and correction of inner-filter effects and Rayleigh and Raman scattering lines, enabling rapid export to multivariate modeling programs including our partner, Solo, by Eigenvector Research, Inc.

Hardware features

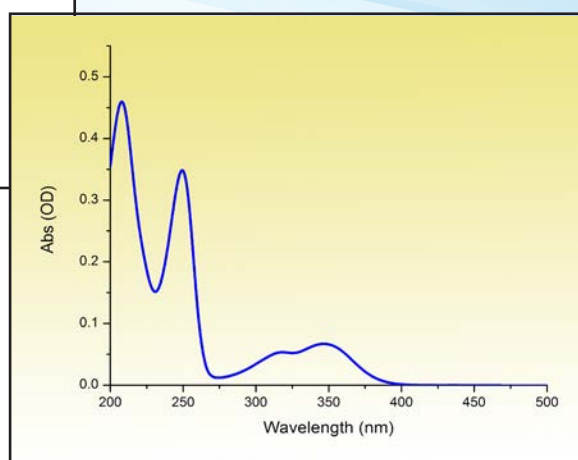
- The only true simultaneous absorbance-fluorescence system available
- TE-cooled CCD fluorescence emission detector for rapid data-acquisition up to 100 times faster than any other benchtop fluorometer
- Corrected UV-VIS absorbance detection path for stability and accuracy
- Double-grating excitation monochromator for superior stray light rejection
- Matching bandpass for absorbance and fluorescence spectra
- Automatic sample changer option (2- or 4-position)
- Compatible with flow cells and titrator

Full suite of performance validation tests

- NIST Fluorescence Standard Reference Materials for spectral calibration and correction (SRMs: 2940, 2941, 2942, 2943)
- Starna[®] Standard Reference Material for Quinine Sulfate Fluorescence Emission Spectral Correction (RM-QS00)
- NIST Absorbance Standard Reference Materials for Ultraviolet-Visible Spectrophotometry (SRM 931g)
- Starna[®] Standard Reference Materials for Ultraviolet-Visible Spectrophotometry (RM-06HLKI)
- Water Raman signal-to-noise evaluation



**Excitation-Emission
Matrices and absorption
spectra from 200 nm!**

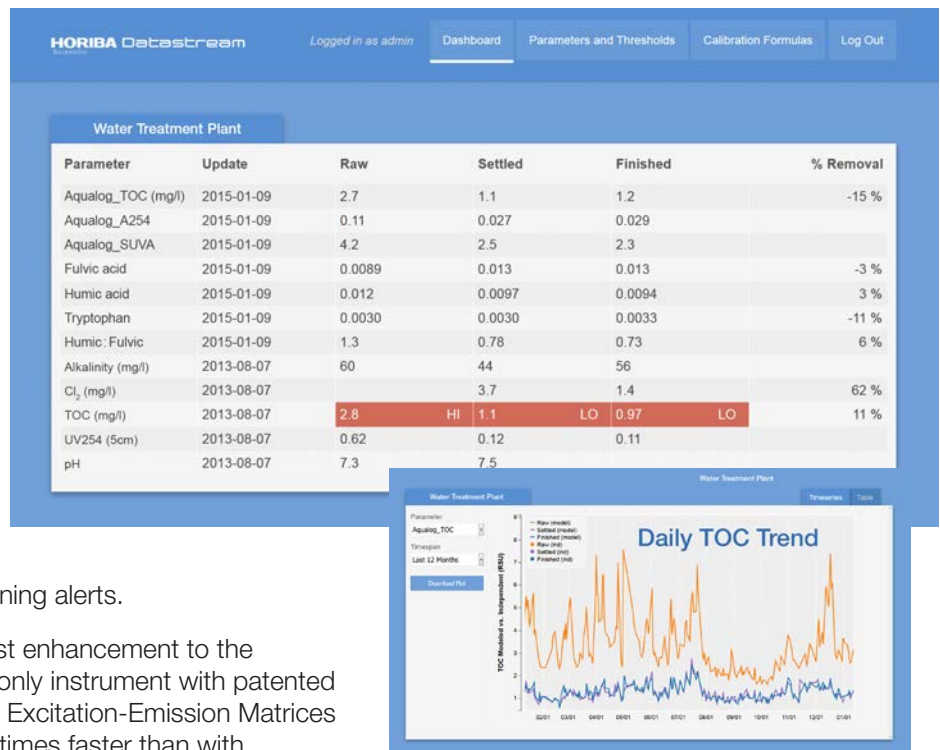


Aqualog Datastream for Instant Water Quality Reports

The NEW Aqualog Datastream Dashboard facilitates completely automated analysis and reporting of a wide range of organic matter parameters that are critical for managing and optimizing the drinking water treatment process. The Datastream parameters have been selected to specifically target disinfection by-product issues, algal issues and other contamination components. The Dashboard provides the latest readings, time series and tables or trend analysis, % removals, thresholds and MCLs (Maximum Contaminant Limits) for all of these parameters, and reports on fit statistics and residual evaluation for system performance monitoring, contamination detection and early warning alerts.

The Datastream Dashboard is the latest enhancement to the HORIBA Aqualog. The Aqualog is the only instrument with patented simultaneous UV-Vis and fluorescence Excitation-Emission Matrices (EEMs), which are acquired up to 100 times faster than with other instruments.

Water treatment facilities can also upload their independent data to simultaneously analyze pH, alkalinity, turbidity, Cl₂ and other key parameters.



These Datastream Parameter Specification Tables highlight the high-sensitivity and wide range of parameters at your fingertips.

Features:

- Seamless integration with Aqualog
- Convenient HTML-based interface
- Push-button method operation
- Simple administrator level controls for calibration and method development

Benefits:

- Easy access through internet or intranet
- Dashboard shows the latest readings, time series and tables for trends and analysis
- WTP can upload their own independent data

Instant Dashboard results include:

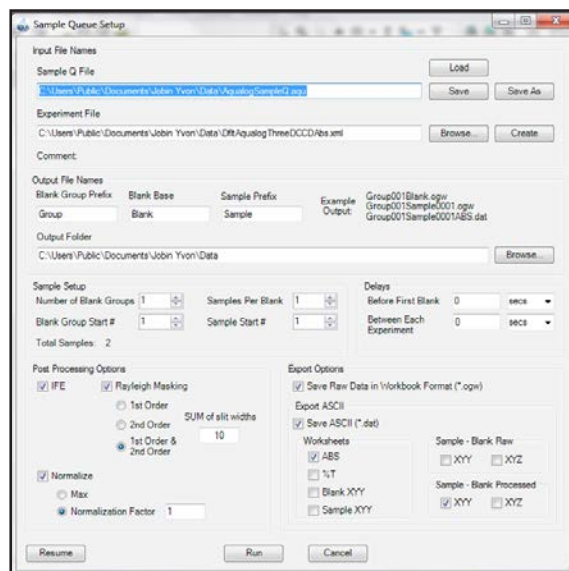
- Dissolved Organic Carbon Concentration
- Disinfection By-product Formation Potentials
- Complete UV-Vis spectra (A254)
- Specific UV Absorbance
- Algae (Bluegreen, Green and others)
- Oils and PAHs
- Regional Molecular Fingerprint Analysis
- Absorbance Slope Analysis
- Humic and Fluorescence Indices
- Process Step Coordination
- Time Series and Tables for Trend Analysis
- 95% removal of customer input requirements or analysis
- Thresholds and MCLs for all Parameters
- Model Parameters, Fits and Residual Evaluation

Software Features

- Optimized experiment set-up menus minimize user configuration time
- Complete NIST-traceable corrected fluorescence spectra automatically generated
- Spectral and kinetic analysis tools for both absorbance and fluorescence data
- Methods and batch protocols for automating multiple sample measurement

Experimental Menu

- Absorbance spectra
- Absorbance kinetics
- Fluorescence emission spectra
- Fluorescence emission spectra kinetics
- Combined fluorescence emission spectra and absorbance kinetics
- Fluorescence excitation-emission matrices (EEMs)
- Combined excitation-emission matrices and absorbance spectra
- Trigger-enabling
- Sample Queue tool for collection of continuous EEMs plus absorbance spectra, correction, and export for up to 1000 samples without interruption. Compatible with multi-position sample changers, operation of flow-through cells and autosamplers. Automated generation of component identification and quantification tables using Eigenvector's Solo Predictor package!



Built-in Tools for EEM Analysis

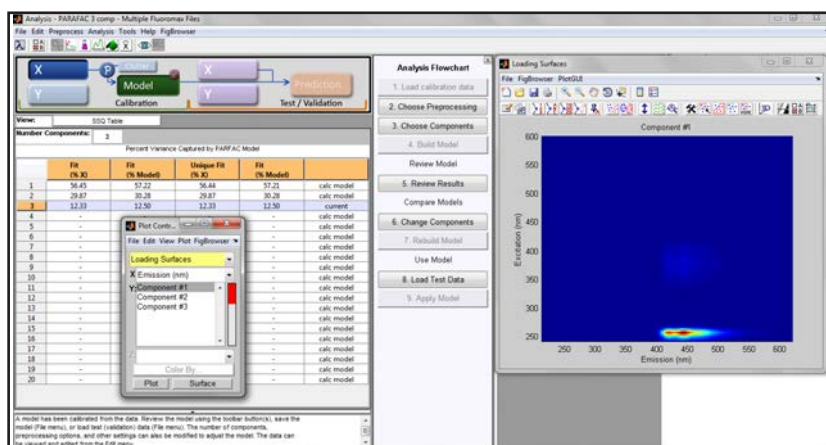
- Correction of inner-filter effects
- Rayleigh-masking of first and second orders
- Normalization (Quinine Sulfate Units or Raman scattering units)
- Multivariate analysis, including PARAFAC (parallel factor analysis)
- Batch export of EEMs
- 2-Dimensional excitation and emission extraction of spectral profiles from EEMs

Multivariate Analyses with Our Partner, Eigenvector

Save hours of data processing with the combined power of HORIBA Scientific's new Aqualog and Eigenvector's Solo software! Simply import your fully corrected excitation-emission matrix (EEM) data directly from the HORIBA Scientific Aqualog into Eigenvector's Solo software to rapidly perform PARAFAC and many other multivariate analyses pertinent to colored dissolved organic matter (CDOM).

The Aqualog package performs all necessary spectral corrections. Quickly assemble EEMs into convenient DataSet objects to easily manage labels, axis scales, and classes, and include or exclude data from the analysis with a simple click.

Solo provides the graphical interfaces to quickly manage and analyze EEM data, create and apply models, and interpret results.



Aqualog Water Quality Applications

Measure the
full UV to NIR
spectrum of
water
contaminants

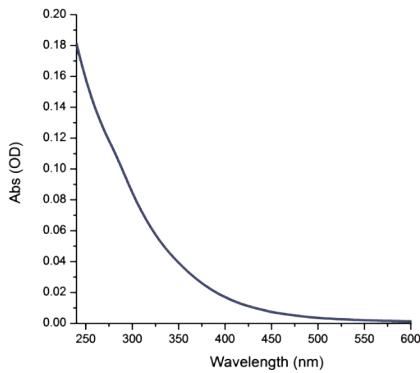
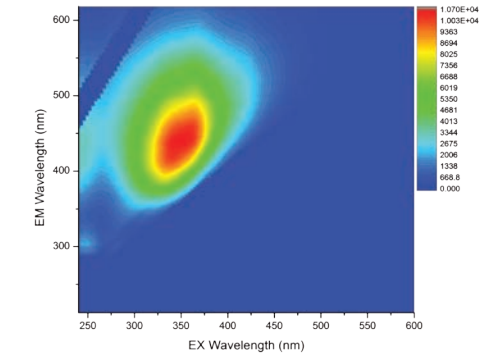
Ideal for quantitative
hydrologic studies
with tracer dyes, using:

- Resazurin-resorufin
- Fluorescein
- Rhodamine
- Pyranine

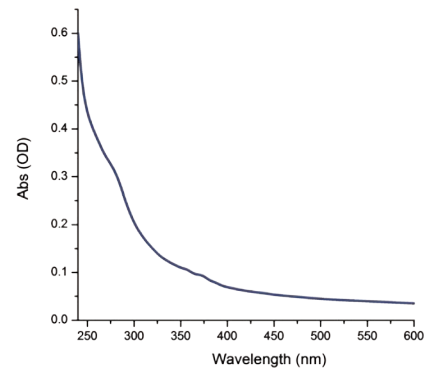
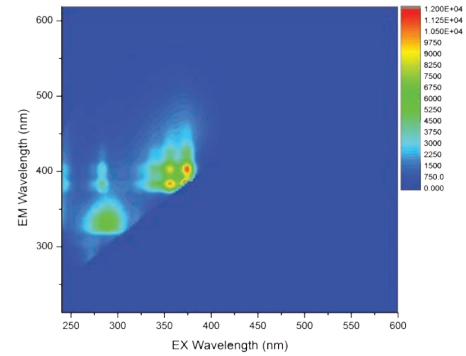
CDOM applications:

- Membrane fouling
(microfiltration, reverse osmosis)
- Microbial and
algal activity
- Carbon fate and
cycling activity

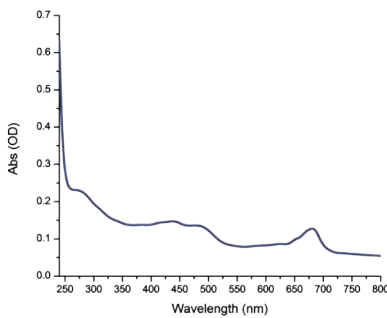
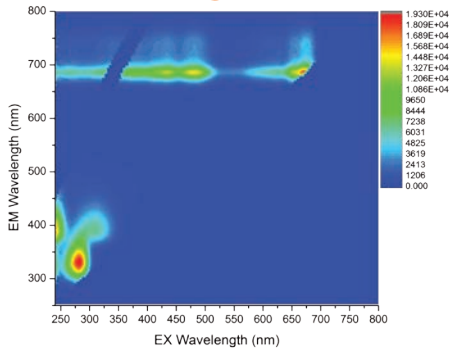
CDOM



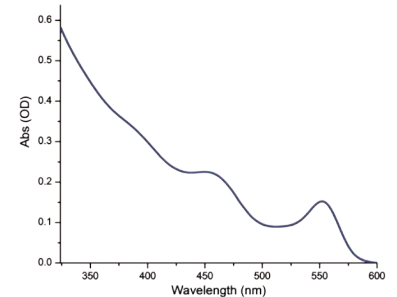
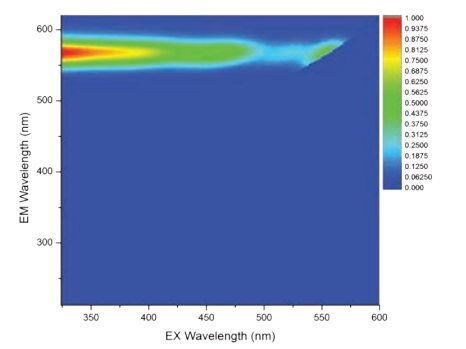
Oils and PAHs



Chlorophyll from Algae



Quantum Dots



Fluorescence Hardware Specifications

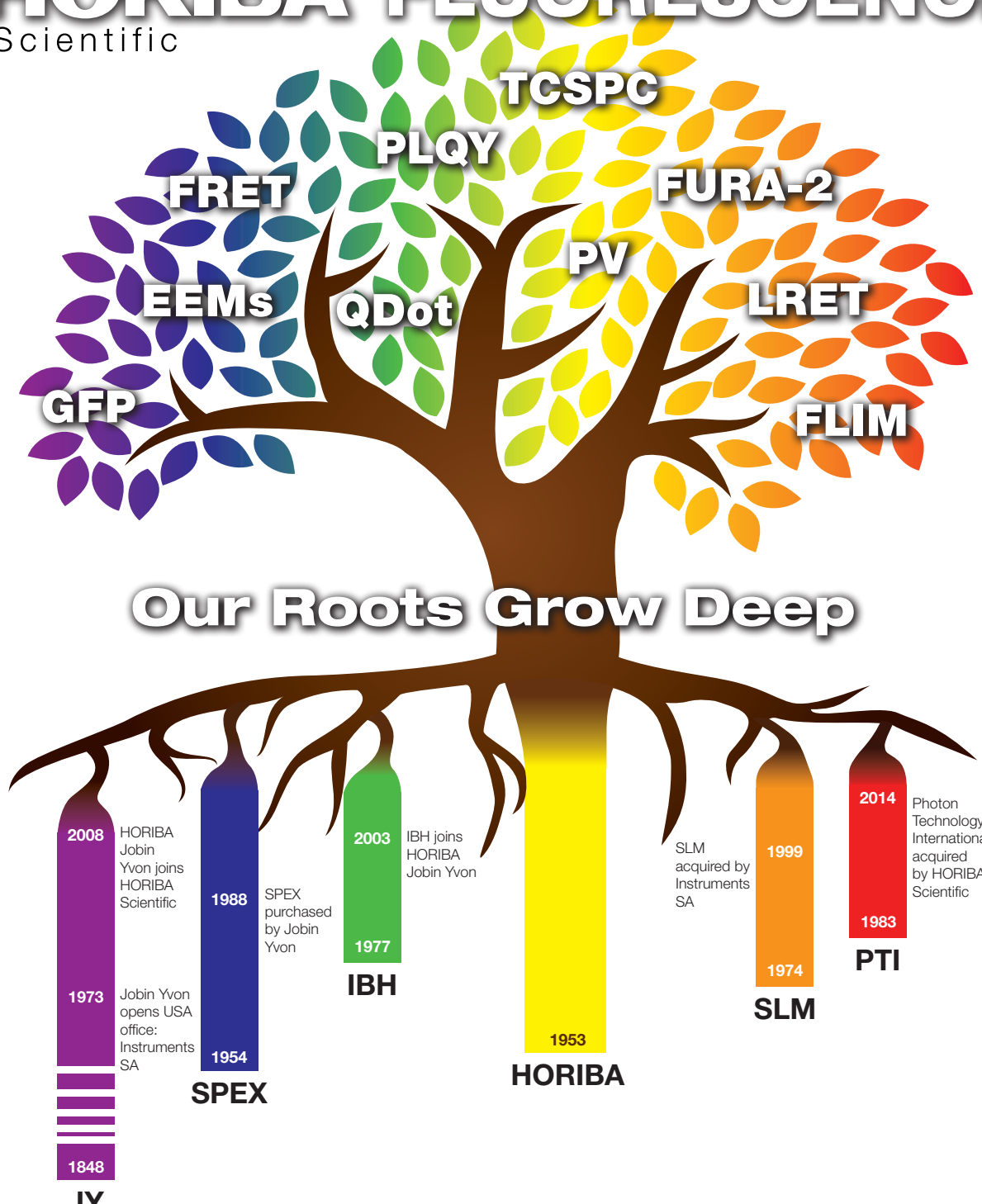
Parameter	Specification	
Choice of light source	Standard: 150 W ozone-free vertically mounted xenon arc lamp	Extended-UV: 150 W vertically mounted xenon arc lamp
Excitation range	230 nm to upper limit of emission detector	200 nm to upper limit of emission detector
Excitation bandpass	5 nm	
Excitation monochromator	Subtractive double monochromator	
Excitation gratings	1200 gr/mm; 250 nm blaze	
Excitation wavelength accuracy	±1 nm	
Choice of detector	UV-Visible	Red-extended
Emission range	250–620 nm	250–800 nm
Emission grating	405 gr/mm; 250 nm blaze	285 gr/mm; 350 nm blaze
Hardware pixel-binning	0.41, 0.82, 1.64, 3.28 nm/pixel	0.58, 1.16, 2.32, 3.64 nm/pixel
Emission bandpass	5 nm	
Emission spectrograph	Fixed, aberration-corrected 140 mm focal length	
Emission detector	TE-cooled back-illuminated CCD	
Emission integration time	5 ms minimum	
CCD gain options	2.25 e ⁻ /cts in high gain, 4.5 e ⁻ /cts in medium gain, 9 e ⁻ /cts in low gain	
Sensitivity	Water-Raman SNR > 20 000:1 (RMS method) (350 nm excitation, 30 s integration)	
Weight	33 kg (72 lbs)	
Dimensions	L × W × H (618 × 435 × 336 mm); (24" × 17" × 13")	

Absorbance Hardware Specifications

Parameter	Specification
Scanning range	200–800 nm (UV lamp) 230–800 nm (Standard lamp) mounted xenon arc lamp
Bandpass	5 nm
Slow speed	Maximum 500 nm/s
Optical system	Corrected single-beam
Detector	Si photodiode
Wavelength accuracy	±1 nm
Wavelength repeatability	+/- 0.5 nm
Photometric accuracy	±0.01 AU from 0 to 2 A
Photometric stability	<0.002 AU per h
Photometric repeatability	+/- 0.002 AU (0 to 1 AU)
Stray Light	<1% measured with KI standard

HORIBA FLUORESCENCE

Scientific



Our Roots Grow Deep

2008 HORIBA Jobin Yvon joins HORIBA Scientific

1988 SPEX purchased by Jobin Yvon

2003 IBH joins HORIBA Jobin Yvon

1999 SLM acquired by Instruments SA

2014 Photon Technology International acquired by HORIBA Scientific

1973 Jobin Yvon opens USA office: Instruments SA

1954 SPEX

1977 IBH

1953 HORIBA

1974 SLM

1983 PTI

1848 JY

www.horiba.com/fluorescence
info.sci@horiba.com

- USA:** HORIBA Instruments Inc., 3880 Park Avenue, Edison, NJ 08820-3012 - Toll-free: +1-866-562-4698 - Tel: +1 732 494 8660 - Fax: +1 732 549 5125 - Email: info.sci@horiba.com
- France:** HORIBA Jobin Yvon S.A.S., 16-18 rue du Canal, 91165 Longjumeau cedex - Tel: +33 (0)1 69 74 72 00 - Fax: +33 (0)1 69 09 07 21 - Email: info-sci.fr@horiba.com
- Japan:** HORIBA Ltd., Tokyo Branch Office, 2-6, KandaAwaji-cho, Chiyoda-ku, Tokyo 101-0063, Japan - Tel: +81-(0)3 6206 4721 - Fax: +81 (0)3 6206 4730 - Email: info-sci.jp@horiba.com
- Germany:** HORIBA Jobin Yvon GmbH, Neuhofstraße 9, 64625 Bensheim - Tel: +49 (0)89 4623 17-0 - Fax: +49 (0)89 4623 17-99 - Email: info-sci.de@horiba.com
- Italy:** HORIBA Jobin Yvon Srl., Via Cesare Pavese 21, 20090 Opera (Milano) - Tel: +39 2 5760 3050 - Fax: +39 2 5760 0876 - Email: info-sci.it@horiba.com
- UK:** HORIBA UK Ltd., 2 Dalston Gardens, Stanmore, Middlesex HA7 1BQ - Tel: +44 (0)20 8204 8142 - Fax: +44 (0)20 8204 6142 - Email: info-sci.uk@horiba.com
- China:** HORIBA (China) Trading Co. Ltd., Unit D 1F, Bldg A, Srynnex International Park, No. 1068 West Tianshan Road, Shanghai 200335 - Tel: +86 (0)21 6289 6060 - Fax: +86 (0)21 6289 5553 - Email: info-sci.cn@horiba.com
- Brazil:** HORIBA Instruments Brasil Ltda., Rua Presbítero Plínio Alves de Souza, 645, Loteamento Polo Multivias, Bairro Medeiros, Jundiaí / SP, CEP 13.212-181 - Tel: +55 (0)11 2923 5440 - Fax: +55 (0)11 2923 5490 - Email: infocientifica.br@horiba.com
- Other:** Tel: +1 732 494 8660 - Email: info.sci@horiba.com

FluoroMax is a registered trademark in the United States of HORIBA Instruments Incorporated.

HORIBA Scientific has a policy of continuous product development, and reserves the right to amend part numbers, descriptions and specifications without prior notice.