Lambda X65 series

UV/Vis Simplified for your Lab

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October 2015

PerkinElmer®
For the Better

KEY MESSAGES

- More than 50 years history of winning UV-Vis technology by…

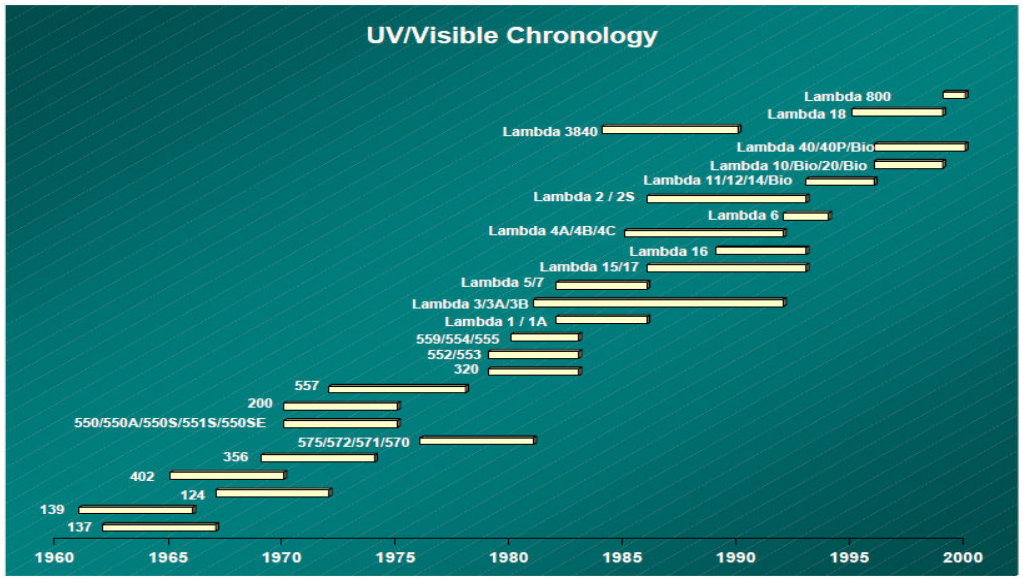
- THE HEART OF LAMBDA IN A SMALLER AND INNOVATIVE PACKAGE
- 30,000 customers can't be wrong
- LAMBDA means QUALITY!

- We offer the broadest range of UV-Vis-NIR spectrometers – just tell us what you need and we will deliver the right instrument

More than 50 years history of winning UV-Vis technology by PerkinElmer

R.S. Perkin C.W. Elmer

- 1937
  - Richard S. Perkin und Charles W. Elmer found the Perkin-Elmer optical shop
- 1962
  - Perkin-Elmer first UV-Vis instrument UV 139
- 1981
  - PerkinElmer first LAMBDA UV-Vis system



35 years Lambda UV-Vis spectrometer

PerkinElmer

UV/Vis/NIR product portfolio

Performance

PerkinElmer UV software
UV Winlab for HPUV
UV Express for Lambda 365
UV Lab for Lambda 265/465

Lambda HighPerformance UV/Vis NIR
Lambda 650/750/850/950/1050

Lambda 465

UV/Vis/NIR-Spectrometer
High performance across the UV/Vis/NIR range
Unmatched flexibility and sensitivity

Lambda 365

UV/Vis-Spectrometer
High performance PDA that delivers reliability – and confidence

Lambda 265

UV/Vis-Spectrometer
compact, versatile high-performance double-beam UV/Vis

PDA UV/Vis-Spectrometer
fast, accurate, affordable results

Lambda XLS/Bio

UV/Vis-Spectrometer – stand alone
easy, fast, robust and reliable

..the broadest product portfolio - for each application the right solution

PerkinElmer

Which Model to choose?

Conventional ("Dispersive")	Photodiode Array (PDA)
 LAMBDA 365	 LAMBDA XLS/ BIO
 LAMBDA 35	 LAMBDA 265
 HPUV LAMBDA	 LAMBDA 465

tell us your needs and we recommend the right system..

UV/Vis simplified for the Lab …..

PerkinElmer's new LAMBDA series offers confidence in a wide range of sample analyses. Self-aligning accessories provide for "mistake proof" materials characterization.

- Intuitive Software with a simplified user interface
- Instrument self check, never a question about performance
- Flexibility to rapidly change sample analysis
- Automated Accessory Align
- Compact Design, saves valuable bench space
- Application modules covering many application areas to save time
- Advanced Visualization Tools

EVERYTHING YOU NEED
FOR CLEARLY
AMAZING RESULTS

PerkinElmer

Lambda UV-Vis for Improving the Quality Life

Foods/Nutritionals

Packaging Characterization
Color Testing
Vitamins
Wine testing

Industrial

Fuels
Color Testing
Multi-Component Analysis
Solvent Analysis
Textiles
Catalysis

Pharma/Life Sciences

RNA/DNA Studies
Enzyme Kinetics
Dissolution testing
USP Method Compliance

Environmental Air/Water/Soil

Heavy Metals in Water
Nano Particles
Soil Contamination
Sunscreens

LAMBDA 365
Work Horse Double Beam UV/Vis

PerkinElmer

Lambda 365
Compact, versatile high-performance double-beam UV/Vis

The LAMBDA 365 delivers state-of-the-art UV/Vis performance that meets the needs of pharmaceuticals, analytic chemists, geneticists, and manufacturing QA/QC analysts everywhere. With 21 CFR part 11 software available, the LAMBDA 365 is ready to support all your needs – everything from standard methods and applications to those requiring regulatory compliance.

THE HEART OF LAMBDA IN A SMALLER AND INNOVATIVE PACKAGE

30,000 customers can't be wrong
LAMBDA means QUALITY!

Send your old Lambda into retirement and replace it with the NEXT generation!

PerkinElmer

Lambda 365
Compact, versatile high-performance double-beam UV/Vis

- Ready to support all your needs
- Double-beam technology - when high stability and low stray light are critical
- Large sample compartment
- Wide range of accessories
- Easy-to-install accessories to minimize setup time and effort
- Auto-alignment of multi cell changers

For optimized results in a wide range of routine applications, including manufacturing and pharmaceutical QA/QC, environmental testing, academics and more

Lambda 365
Compact, versatile high-performance double-beam UV/Vis

Accessories To Support Key Applications

Lambda 365 Double Beam UV/VIS Spectrophotometer

- Double Beam Optics (Dual Silicon Photodiode detectors)
- Wavelength Range: 190 - 1100 nm
- Dynamic range to 4A
- Wavelength Accuracy: ±0.1 nm (at D2 peak 656.1 nm)
- Spectral Bandwidth: Variable (0.5, 1, 2, 5, 20 nm)
- Interface: USB

Includes

- UV Express software
  - Easy to learn and use software
  - Method based with calculations and report
  - Wavelength Program
  - Scan
  - Quant
  - Kinetics
  - Scanning Kinetics
  - Bio Applications (Protein / DNA / RNA analysis, DNA Melting)
  - Windows 7 and 8 compatible (32/64 bit)
- Single Cell Holder 10 mm
- USB Cable for Communication
- User's Guide

The Heart of a Lambda in a Smaller Package
Performance comparison

Parameter	Lambda 365	Lambda 25	Lambda 35
Appearance/General Features			
Optics	Double Beam Optics	Double Beam Optics	Double Beam Optics
Detectors	Dual Silicon Photodiode	Photodiode	Photodiode
Size (W x D x H)	495 x 500 x 270 mm	650 x 560 x 233 mm	650 x 560 x 233 mm
USB Connectivity as standard	Yes	No	No
Built-in diagnostics	Enhanced with software start	With power on	With power on
Microsoft Windows® 7 and 8 compatible	Yes	No	No
Performance			
Spectral Bandwidth	Variable (0.5, 1, 2, 5, 20nm)	Fixed (1nm)	Variable (0.5, 1, 2, 4nm)
PhEUR Stray Light (@198nm)	>2A	>2A	>2A
Stray Light (ASTM)	<0.02%T	<0,01%T	<0,01%T
Absorbance Stability	0.0003A/hour	0.00015 A/hour	0.00015 A/hour
Absorbance Range	+/- 4A	+/- 3.2A	+/- 3.2A
Minimum spectral resolution	0.5nm	0.5nm	0.5nm
Wavelenght range	190-1100nm	190-1100nm	190-1100nm
Fastest scan speed	3000 nm/min	2880 nm/min	2880 nm/min

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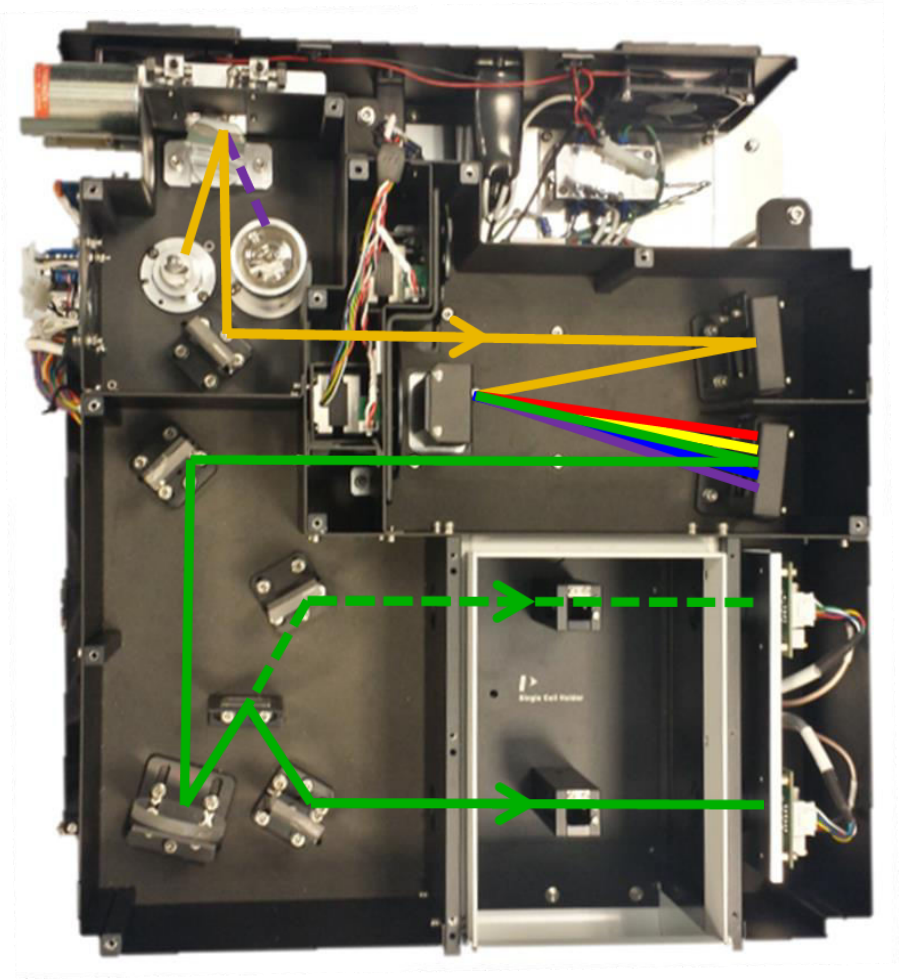
LAMBDA 365 offers REAL stability by design



Lambda 365 optical beam path

- The thick cast metal baseplate used by PerkinElmer offers unrivalled robustness (especially when comparing with others using pressed metal or plastic designs).
- It also contributes to our high data stability. The instrument is not affected by thermal effects in the lab.
- The large base allows to accommodate our large, high performance optics design for excellent results.

Lambda 365 offers a wide range of accessories and configurations

Lambda 365 accessories

For liquids

- 1+1 cell
- 1+1 cell (jacketed)
- 1+1 Variable pathlength cell
- 1+1 Test tube holder
- 8+1 cell changer
- 8+1 cell changer (jacketed)
- 1+1 cell (Peltier)
- 6+1 cell changer (Peltier)
- Sipper
- Autosampler
- Fiber probe

For solids

- 1+1 Transmission
- 1+1 Film holder
- Variable angle transmission
- 1+1 Reflectance
- Reflectance 6°
- Variable angle reflectance
- 1+1 Integrating sphere

- The LAMBDA 365 has a wide range of accessories for any kind of application with liquid or solid samples.
- Customer ease of use, e.g.
  - Accessories are pre-aligned and snap right in without tools
  - Cell changers self align automatically.
  - All tubing and cables inside jacketed cell holders or changers are completely pre-installed.
  - The liquid connection is done by self-sealing snap in connectors placed outside the instrument.

Lambda 365 Accessory examples: Cell and Sample Holder for transmission and reflectance

1+1 Microsampling Cell Holder

The ideal solution for samples smaller than the instrument beam size

- Demagnifies the beam
- Increasing energy throughput

1+1 Advanced Transmission Sample Holder

- Designed to hold materials such as glass, polymers, and films
- Providing a positive locating point for the sample that can be adjusted to accommodate a range of sizes and thicknesses.

1+1 Fixed Angle Reflectance Accessory

- Easy-to-use specular reflectance accessory for analysis of solid samples
- Provides high-quality data for identifying films and coatings, measurement of the film thickness, and surface studies of metals.

1+1 Variable Angle Transmission Accessory

- Allows reproducible measurement at multiple angles without moving the mounted sample.
- The angle is easily set by rotating the sample mounting stage.

1+1 Variable Pathlength Cuvette Holder

An easy to install accessory for rectangular cells of varying pathlength.

- The partition plate allows cells to be supported throughout analysis
- Accommodates 5, 10, 20, 40, 50, and 100 mm pathlength cells

... see PDL for more options

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Lambda 365 Accessory examples: Cell changer and Peltier

Automated 8+1-Cell Changer

- fully controlled via software, with parameters stored in the application method.
- simple to change in seconds – no tools necessary.

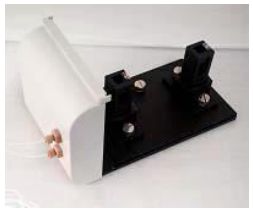
Single Cell or 6+1-Position Peltier Controlled Cell Changer, Controller (with or without Heated Reference)

This six-cell holder allows near synchronous data collection across six conditions in a single experiment, with unattended operation. It is useful for thermal denaturation, kinetics, and other applications where precise temperature control is necessary

- Accommodates up to 6 samples for automated measurement
- Full software control of temperature and stirring
- Contains a built-in radiator that maintains temperature of circulating coolant
- Includes a Peltier 6-Position Multi-Cell Holder and 2 temperature probes
- Temperature Control: Sample only
- Temp. Control Range: -10 to 100°C
- Temperature Accuracy: ± 0.15°C
- Temperature Control Precision: 0.1°C

... see PDL for more options

Lambda 365 Accessory examples: Sipper and integrating sphere



Auto Sipper Accessory
consists of Automatic Peristaltic Pump, Pumping Cartridge, tubing, and Computer Interface Cable.

- complete software control for automation of liquid sampling
- Flow of the sample is controllable by the software
- 2 flow channels, and included is 1 flow-through cell, 420 µL (SC-2)
- Speed (RPM): 1.6 to 160
- Flow Rate: 0.003 mL/min to 68.8 mL/min
- Tubing I.D.: 0.13 to 3.17 mm
- Operating Temperature Range: 0 to 40°C

50 mm Transmission/Reflectance Sphere, High Sensitivity
Used for measuring the diffuse reflectance (SCE), total transmittance, diffuse transmittance, and performing color analysis.

- Spectral range of 230-1100 nm (UV and visible).
- port size is 10 mm
- Spectral bandwidth is 20 nm
- White Standard included

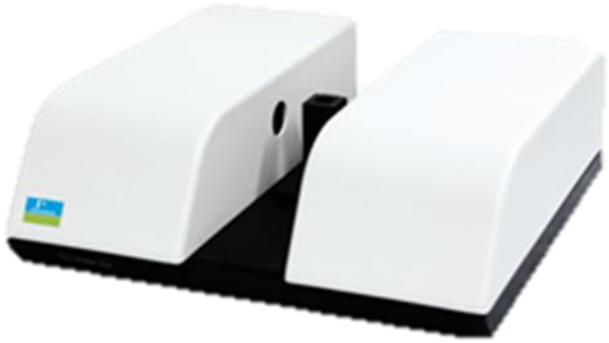
... see PDL for more options

LAMBDA 265
Fast, accurate, affordable results

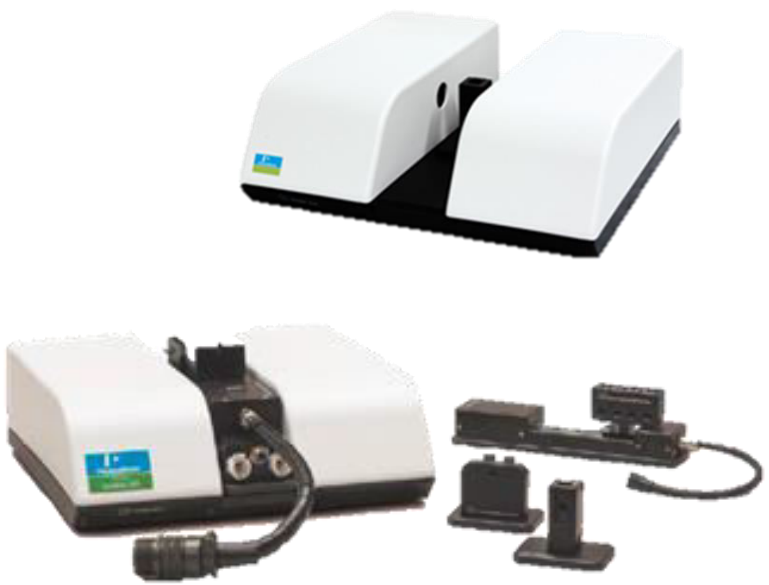
PerkinElmer

Lambda 265 – *Fast, accurate, affordable results*

With ultrafast data processing and maximum reliability, the LAMBDA 265 is the ideal system for a wide range of R&D and QA/QC applications, all while taking up minimal bench space. Its photodiode array (PDA) detector enables data to be acquired simultaneously across the full wavelength range – from 190 nm to 1100 nm. In seconds, your processing is complete and ready for you to act on. Plus, the LAMBDA 265 system's robust modular design, with no moving parts, is ideal for any busy lab. The high energy Xenon flash lamp is active only when a spectrum is being acquired and provides years of worry-free operation. And the system's compact size makes it simple to move it to any location where it might be needed



Lambda 265 – *Fast, accurate, affordable results*



- High energy Xenon flash lamp is active only when a spectrum is being acquired and provides years of worry-free operation
- Open sample area for easy sample access and visibility
- Small footprint and no moving parts make it ideal for a wide range of applications
- Range of accessories for liquids and solids

Ease of use, ultrafast data processing and maximum reliability, the LAMBDA 265 is the ideal system for multi user labs (e.g. Academia/Teaching), Biotech (fast and special accessories for DNA melting experiments) and a wide range of other applications, all while taking up minimal bench space

Lambda 265 Personal PDA
Full Spectral Range in A Flash

Lambda 265 Photodiode-Array UV/Vis Spectrophotometer

- 190-1100 nm Wavelength
- Fast spectral acquisition
- 2nm Spectral Resolution,
- ± 1nm Wavelength Accuracy
- Xenon Flash Lamp
- 512 element Photodiode Array
- Up to 50 mm pathlength cuvette capability

Includes

- UV Lab Software
- System Control / Data Processing
- Scan Mode
- Wavelength Monitoring
- Film Thickness
- Quant Mode
- Kinetics Mode
- Windows 7and 8 compatible
- Single Cell Holder, 10 mm
- USB Cable for Communication
- User's Guide
- AC Power Cord

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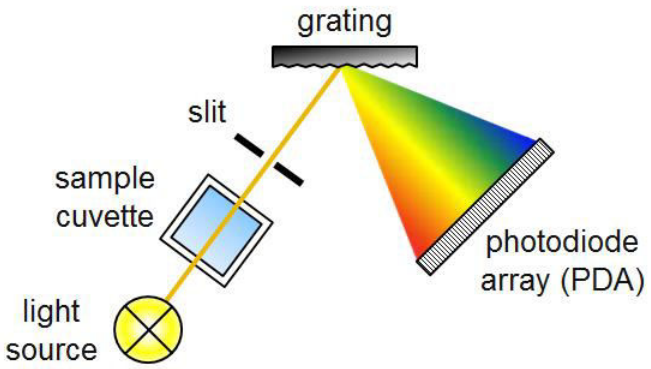
Diode Array Technology – Lambda 265 Design



- The diode array spectrometer configuration for the LAMBDA 265 utilizes a reverse optic design passing white light through the sample. As the lamp is pulsed a dark measurement to be made. This is used to correct for ambient light, allowing sampling to be done without the need of a sample compartment cover. Diode array spectrometers allow full spectrum to be acquired for each scan cycle (190nm - 1100nm). The grating separates the poly chromatic light into discrete wavelengths which are focused on the linear array.
- The LAMBDA 265 utilizes a Xenon flash lamp providing long life as the lamp is only flashed during a data acquisition.

Lambda 265 – *Fast, accurate, affordable results*
Some performance data

Parameter	Lambda 265
Appearance/General Features	
Source Lamp	Xenon Flash
Detectors	Diode Array
Size (W x D x H)	340 x 320 x 115 mm
USB Connectivity as standard	Yes
Microsoft Windows® 7 and 8 compatible	Yes
Performance	
Spectral Bandwidth	2nm (Spectral resolution)
Stray Light	<1.0% (198 nm KCL) <0.05% (220 nm NaI) <0.03% (340 nm NaNO2)
Wavelenght Accuracy	+/- 1nm
Wavelength Reproducibility	+/- 0.02nm
Absorbance Range	+/- 3A
Photometric Stability	< 0.002 AU/h @ 0 AU, 300 nm
Wavelenght range	190-1100nm

Lambda 265 offers a wide range of accessories and configurations

Lambda 265 accessories

For liquids

- Single cell
- Single cell (jacketed)
- Variable pathlength cell
- 8 cell changer
- 8 cell changer (jacketed)
- Single cell (Peltier)
- 6 cell changer (Peltier)
- Sipper
- Autosampler

For solids

- Transmission
- Film holder
- Reflectance

- Compared to other DAD systems of its size, the LAMBDA 265 offers a wide range of accessories for a wide range of application with liquid or solid samples.
- Plus, most of these accessories snap right in – no tools necessary – so everyone in your lab can be productive right away

Lambda 265 Accessory examples: Cell and Sample Holder for transmission and reflectance

Water Jacketed Single Cell Holder
Maintains temperature control over standard 10 mm cells using recirculating liquid

Variable Pathlength Holder
An easy to install accessory for rectangular cells of different pathlength. The partition plate allows cells to be supported throughout analysis.
It accommodates 5, 10, 20, and 50 mm pathlength cells.

Reflectance Module Accessory
Designed for measuring specular reflectance spectra at a fixed angle (incident angle: 30° fixed). It is used for film thickness measurement.

Advanced Transmission Holder
This is useful for transmission measurements on various solid samples (films, filters, glass, plastics, etc.). The spring-loaded clamp securely holds objects up to 2.5 cm thick. The magnetic plate precisely positions films and thin samples

... see PDL for more options

PerkinElmer

Lambda 265 Accessory examples: Cell changer and Peltier

Water Jacketed 8-Position Multi-Cell Holder
Accommodates any standard 10 mm cells (up to 8 cells), while using recirculating liquid to control the temperature of multi samples for simultaneous analysis. Also comes with automated software calibration

Peltier Controlled Single Cell
Useful for thermal denaturation, kinetics and other applications where precise temperature control is necessary. It comes with full software control of temperature and stirring for 1 sample. Also has a built-in radiator that maintains temperature of circulating coolant. Includes a Peltier Single Cell Holder and 2 temperature probes.

- Temp. Control Range: - 10 to 100°C
- Temperature Accuracy : ± 0.15°C
- Temperature Control Precision : 0.1°C

... see PDL for more options

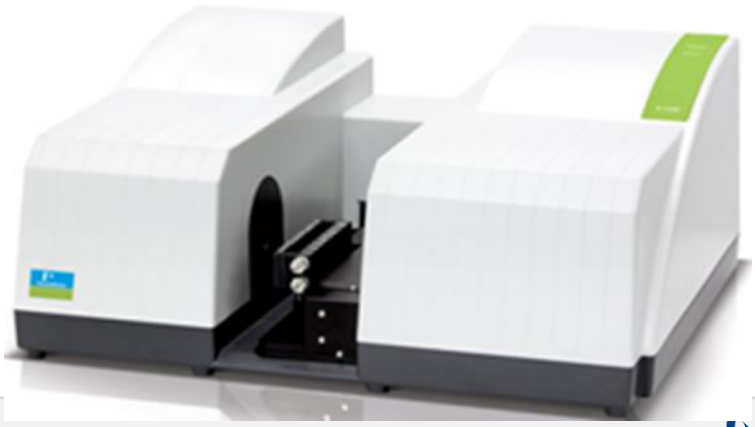
PerkinElmer

LAMBDA 465
High performance PDA that delivers reliability – and confidence

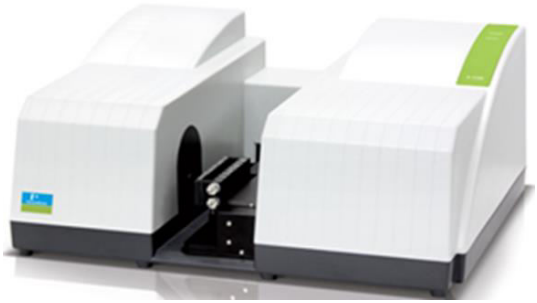
Lambda 465

High Performance PDA that delivers reliability – and confidence

Designed specifically for high-end research as well as routine and high-throughput applications, the LAMBDA 465 is the innovative PDA solution that provides maximum reliability – for maximum confidence in your results. Its PDA technology allows the acquisition of a full spectrum – from 1100 nm to 190 nm – in as little as 20 msec. In addition, the system has 1-nm resolution, allowing it to meet the requirements of a number of pharmacopoeias. With 21 CFR part 11 compliant software, it's an ideal solution for dissolution, fast kinetics, and other applications where high-speed scanning and high resolution are required – and it's perfect for method development and sample analysis, too.



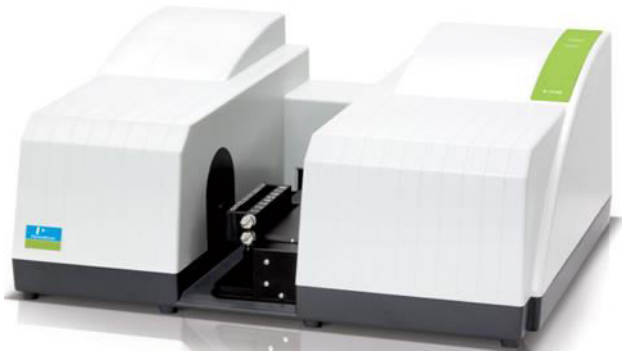
Lambda 465
High performance PDA that delivers reliability – and confidence



- Photodiode array (PDA) detector enables data to be acquired simultaneously across the full wavelength range
- Dual light source (tungsten and deuterium) in a see-through configuration is unitized. This configuration provides the highest energy throughput possible – an important consideration with accessories that impact energy throughput
- Open sample area for easy sample access and visibility
- Range of accessories for liquids and solids

It's an ideal solution for dissolution, fast kinetics, and other of applications where high-speed scanning and high resolution are required – and it's perfect for method development and sample analysis, too.

Lambda 465
High performance PDA that delivers reliability – and confidence



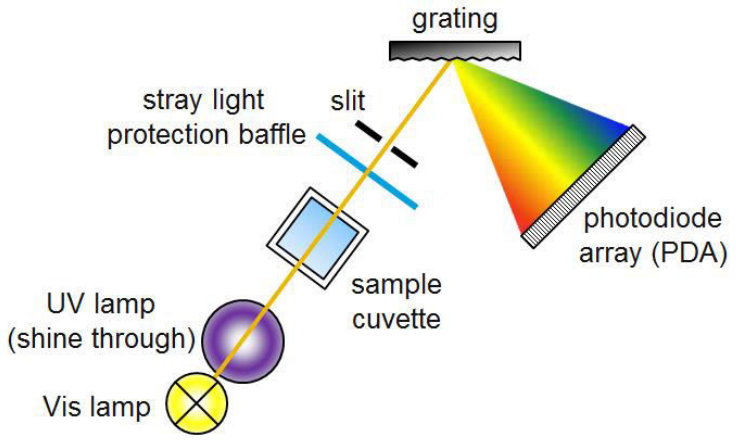
LAMBDA 465 Photodiode-Array UV/Vis Spectrophotometer

- 190-1100 nm spectral range,
- 0.95nm SBW (Pharma compliant)
- Ultra-fast scanning time : 20 msec,
- 1024-Channel Photodiode array detector
- 21 CFR part 11 package available

Includes

- UV Lab Software
- General System Control / Data Processing
- Quantification
- Material Thickness Measurement
- System Monitoring
- Advanced Diagnostics
- Single Cell Holder, 10 mm
- USB Cable for Communication
- User's Guide
- AC Power Cord

Diode Array Technology – Lambda 465 Design



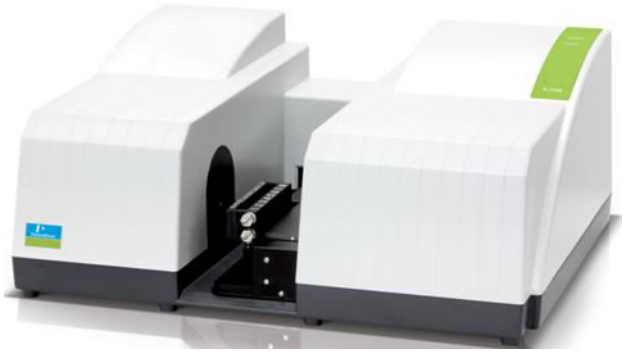
- The diode array spectrometer configuration for the LAMBDA 465 utilizes a reverse optic design passing white light through the sample. As the lamp is blocked by a shutter a dark measurement to be made. This is used to correct for ambient light, allowing sampling to be done without the need of a sample compartment cover. Diode array spectrometers allow full spectrum to be acquired for each scan cycle (190nm -1100nm). The grating separates the poly chromatic light into discrete wavelengths which are focused on the linear array.

  The LAMBDA 465 uses a more conventional D2 / Tungsten halogen lamp configuration. This is also the same basic lamp combination used on the LAMBDA 365 as well as all the LAMBDA 25/35/45 instruments. The advantage of this lamp configuration is achievement of the highest energy levels across the complete UV/Vis range

Lambda 465

High performance PDA that delivers reliability – and confidence

Parameter	Lambda 465
Appearance/General Features	
Source Lamp	Tungsten/Deuterium
Detectors	Diode Array 1024 channel
Size (W x D x H)	541 x 450 x 232 mm
USB Connectivity as standard	Yes
Microsoft Windows® 7 and 8 compatible	Yes
Performance	
Spectral Bandwidth	0,95 nm (Spectral Resolution)
Stray Light	<1.0% (198 nm KCL) <0.05% (220 nm Nal) <0.03% (340 nm NaNO2)
Wavelenght Accuracy	+/-0 .5 nm (Holmium Oxide Solution NIST 2034) +/- 0.2 nm (D2 peak, 486.0 nm and 656.1 nm)
Wavelength Reproducibility	+/- 0.02nm
Absorbance Range	+/- 3A
Photometric Stability	< 0.001 AU/h @ 0 AU, 300 nm
Wavelenght range	190-1100nm



Lambda 465
offers a wide range of accessories and configurations

Lambda 465 accessories

For liquids

- Single cell
- Single cell (jacketed)
- Variable pathlength cell
- 8 cell changer (jacketed)
- Single cell (Peltier)
- 6 cell changer (Peltier)
- Sipper
- Fiber probe
- Autosampler

For solids

- Transmission
- Variable angle transmission
- Film holder
- Diffuse reflectance
- Reflectance

- The LAMBDA 465 offers a wide range of accessories for a wide range of application with liquid or solid samples.
- Plus, most of these accessories snap right in – no tools necessary – so everyone in your lab can be productive right away

Lambda 465 Accessory examples: Cell and Sample Holder for transmission and reflectance

Water Jacketed Single Cell Holder
Maintains temperature control over standard 10 mm cells using recirculating liquid

Variable Pathlength Cell Holder, single cell
An easy to install accessory for rectangular cells of different pathlength. The partition plate allows cells to be supported throughout analysis.
It accommodates 5, 10, 20, 40, 50 and 100 mm pathlength cells.

Reflectance Holder
Designed for measuring specular reflectance spectra at a fixed angle (incident angle: 34° fixed). It is used for film thickness measurement.

Variable Angle Transmission Holder
For transmission measurements of various samples of film, glass and plate etc. at various angles. It adjusts the angle of solid samples for transmission measurements (0~306°). Also accommodates vairous thickness samples and large samples

... see PDL for more options

Lambda 465 Accessory examples: Rapid Mixing Accessories and Fiber Optic Probe

Fiber Optic Probe/Module
Used for measuring liquid samples; intended for the hazardous samples. Includes a transmission dip probe and a 10 mm pathlength tip. Easy to clean.

Rapid Mixing Accessory
For monitoring kinetics reactions in solution by stopped-flow technique. Dead time : 8 ms/Optical Pathlength : 2 and 10 mm Min. Vol./Shot/Reagent: 20 µL. Ratio mixing: up to 10:1 by using different sized syringes.

Rapid Mixing Accessory w/Pneumatic Drive
For monitoring kinetics reactions in solution by stopped-flow technique. Dead time : 8 ms/Optical Pathlength :2 and 10 mm Min. Vol./Shot/ Reagent : 20 µL. Ratio mixing : up to 10:1 by using different sized syringes. Includes pneumatic drive which allows push button operation and best accuracy for zero time measurements.

... see PDL for more options

Lambda 465 Accessory examples: Cell changer and Peltier

Water Jacketed Automatic Referencing Stage (e.g. sample shuttle)
Accommodates any standard 10 mm cells 2-Position for reference and sample. Unique accessory provides long term stability for monitoring kinetics reactions. Use recirculating liquid to control the temperature of a sample and reference solution for simultaneous analysis

Peltier Controlled Multi-Cell (8) with Peltier Controller
Useful for thermal denaturation, kinetics and other applications where precise temperature control is necessary. It accomodates up to 8 samples for automated measurement. Full software control of temperature and a built-in radiator that maintains temperature of circulating coolant. Includes a Peltier 8-position multi-cell holder and 2 temperature probes.

- Temp. Control Range: - 10 to 100°C
- Temperature Accuracy : ± 0.15°C
- Temperature Control Precision : 0.1°C

... see PDL for more options

Nano Sticks

Each Nano Stick standard package kit (with case) comes with 1 Nano Stick, 1 loading plate, 1 bubble checker, and a user guide. The preferred color of your choice can be selected (Black, Blue, Red, Gold, or Silver). The Z-Dimension, the height of the center of the light beam, is 15 mm. The beam pathlength is 0.5 mm. Fits standard 10 mm cell holder

Part No.	Description	Color	Volume	Pathlength
N4101020	Nano Stick-D, Z 15	Black	2 µL	0.5 mm
N4101021	Nano Stick-D, Z 15	Blue	2 µL	0.5 mm
N4101022	Nano Stick-D, Z 15	Red	2 µL	0.5 mm
N4101023	Nano Stick-D, Z 15	Gold	2 µL	0.5 mm
N4101024	Nano Stick-D, Z 15	Silver	2 µL	0.5 mm
N4101031	Nano Stick-S, Z 15	Black	2 µL	0.5 mm
N4101032	Nano Stick-S, Z 15	Blue	2 µL	0.5 mm
N4101033	Nano Stick-S, Z 15	Red	2 µL	0.5 mm
N4101034	Nano Stick-S, Z 15	Gold	2 µL	0.5 mm
N4101035	Nano Stick-S, Z 15	Silver	2 µL	0.5 mm

... see PDL for more options