UNICO®

Spectrophotometers

- Visible
- UV/Vis
- SpectroQuest™
- Software
- Accessories
- Cuvets

United Products & Instruments, Inc.
www.unicosci.com
800-588-9776

Welcome to the UNICO Spectrophotometer catalog. Inside you will find our complete line of spectrophotometers and accessories. Our line ranges from very basic Visible wavelength instruments, to advanced Scanning UV/Visible spectrophotometers. As you browse the catalog, we are confident you will find an instrument to fit your applications and budget.

Contact UNICO:

UNICO is headquartered in Dayton, NJ, U.S.A., just outside of Princeton, where our office, warehouse and service center are located. UNICO is open for business Monday- Friday, 52 weeks a year from 8:30 – 5:30 pm Eastern Standard Time. We are closed for certain national holidays. We can be reached by phone in the U.S. toll free at 800-588-9776; if dialing internationally use 732-274-1155. Our fax number is 732-274-1151.

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Ordering Information:

UNICO products are available from local, national and international distributors worldwide. If you are interested in becoming a UNICO distributor, please contact us at: info@unicosci.com for a distributorship application. If you would like to purchase UNICO products and are unable to find a local supplier, please contact UNICO at info@unicsoci.com and we will direct you to the nearest supplier.

Estimado cliente,

Muchas gracias por su interés en nuestros productos. Este nuevo catálogo incluye todos nuestros espectrofotómetros. UNICO también ofrece microscopios, centrifugas, mezcladores, agitadores y otros equipos y accesorios de laboratorio. Para servicio en español, diríjase directamente a nuestra página Web en donde encontrará folletos de todos nuestros productos, traducidos a nuestro idioma y publicados en formato PDF.

También nos encontramos a vuestra disposición por teléfono al 609-240-5507 o por email a ventas@unicosci.com. Será un placer servirlo.

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Model MX
PowerSpin™ Centrifuge

UNICO manufactures a complete line of Centrifuges, Microscopes, Lab Equipment, and Accessories not shown in this catalog. Please visit our website at www.unicosci.com to see our entire range of products. Downloadable PDF brochures are available on the site.

Model MTR22
Programmable Multi-Mix Rotator

Visible Spectrophotometer Selection Guide

S1000

Electromagnetic Spectrum:
Wavelength Range in Nanometers (nm):

Ultra-Violet (UV), Visible (Vis) and Infrared Light (IR)

- **Ultra-Violet (UV) Spectrum:** 200nm – 400nm
- **Visible Light Spectrum (Vis):** 400nm – 750nm
- **Infrared Spectrum (IR):** 750nm – 300,000nm

S1200

S1100

UNICO Visible Light Spectrophotometers
Wavelength Range by series:

- **S1000 Series:** 400nm – 1,000nm
- **S1100 Series:** 335nm – 1,000nm
- **S1200 Series:** 325nm – 1,000nm
- **S2100+ Series:** 325nm – 1,000nm

S2100+

How do I select the right spectrophotometer for my applications? We can help. Contact UNICO by phone, fax, or e-mail and our technicians will be glad to help select the right instrument for your needs. Please see the Selection Guide below. This will help you understand the general specifications by model.

Model	Wavelength Range (nm)	Slit Width Bandpass	Cell Pathlength	Scanning	Absorbance Range	Concentration Conc., C	Photometric Accuracy	Data Port(s)	Light Beam	Optional Printer	Voltage Pre-set	Pg.
S1000	400-1000 nm	20 nm	10 mm	N/A	0-1.99A	N/A	+/- 2%	USB	Single	N/A	110 Volt	**4**
S1000E	400-1000 nm	20 nm	10 mm	N/A	0-1.99A	N/A	+/- 2%	USB	Single	N/A	220 Volt	**4**
S1100	335-1000 nm	20 nm	10 mm	N/A	0-2.0A	N/A	+/- 2%	USB	Single	N/A	110 Volt	**5**
S1100E	335-1000 nm	20 nm	10 mm	N/A	0-2.0A	N/A	+/- 2%	USB	Single	N/A	220 Volt	**5**
S1100RS	335-1000 nm	10 nm	10 mm	N/A	0-2.0A	0 - 1999 C	+/- 1%	USB & RS232	Single	N/A	110 Volt	**6**
S1100RSE	335-1000 nm	10 nm	10 mm	N/A	0-2.0A	0 - 1999 C	+/- 1%	USB & RS232	Single	N/A	220 Volt	**6**
S1200	325-1000 nm	5 nm	50 mm	N/A	0-2.0A	0 - 1999 C	+/- 1%	USB & RS232	Single	N/A	110 Volt	**7**
S1200E	325-1000 nm	5 nm	50 mm	N/A	0-2.0A	0 - 1999 C	+/- 1%	USB & RS232	Single	N/A	220 Volt	**7**
S1201	325-1000 nm	5 nm	50 mm	N/A	0-2.0A	0 - 1999 C	+/- 1%	USB & RS232	Single	N/A	110 Volt	**7**
S1201E	325-1000 nm	5 nm	50 mm	N/A	0-2.0A	0 - 1999 C	+/- 1%	USB & RS232	Single	N/A	220 Volt	**7**
S1205	325-1000 nm	5 nm	50 mm	Via PC	0.3-2.5A	0 - 9999 C	.004 @ 0.5 A	USB & RS232	Single	N/A	110 Volt	**8**
S1205E	325-1000 nm	5 nm	50 mm	Via PC	0.3-2.5A	0 - 9999 C	.004 @ 0.5 A	USB & RS232	Single	N/A	220 Volt	**8**
S2100+	325-1000 nm	4 nm	100 mm	Via PC	0.3-2.5A	0 - 9999 C	.004 @ 0.5 A	USB & RS232	Single	Yes	110 Volt	**10**
S2100+E	325-1000 nm	4 nm	100 mm	Via PC	0.3-2.5A	0 - 9999 C	.004 @ 0.5 A	USB & RS232	Single	Yes	220 Volt	**10**
S2100+P	325-1000 nm	4 nm	100 mm	Via PC	0.3-2.5A	0 - 9999 C	.004 @ 0.5 A	USB & RS232	Single	Yes	110 Volt	**10**
S2100+PE	325-1000 nm	4 nm	100 mm	Via PC	0.3-2.5A	0 - 9999 C	.004 @ 0.5 A	USB & RS232	Single	Yes	220 Volt	**10**

S1000 Visible Spectrophotometers

S1000 shown with Cuvet Holder closed

Precisely designed and ruggedly built, this easy-to-use spectrophotometer is ideal for student use in high schools, colleges and for general laboratory testing. It is suitable for general analysis and experiments such as Beer-Lambert, Absorption Spectrum, Transmittance, Chlorophyll, protein (biuret test) and more. Includes a visible wavelength spectrum chart on the instrument panel, allowing the user to make the correlation between a wavelength number to an actual color on the visible light spectrum. A versatile instrument designed to accept both round optical glass, or square 10 mm path length cuvets.

The built-in secondary filters reduce stray light and increase precision. The design is "Student-Proofed" making this a durable unit for years of use. Large digital display makes reading much easier and the new USB interface allows customers to collect and print data via a computer.

The model S1000 now includes a USB port for data transfer to a PC. Optional Windows® based software is available for easy data collection and application expansion to Standard Curve and Kinetics. Data can easily be exported to Microsoft Excel® for further processing, analysis and documentation.

The spectrophotometer comes with 1/2" round tube holder, 10 mm square cuvet adapter, box of 12 round optical glass cuvets, Users Guide-Experiment manual and dust cover. It is pre-set for 110 Volt, but is user switchable to 220 Volt. The detachable power cord can easily be switched to a 220 Volt international plug/cord.

View of S1000 USB Data Port

	S1000
Wavelength Range	400-1000nm
Slit Width	20nm
Optical System	Single Beam, Grating System 1200 lines/mm
Wavelength Accuracy	± 3nm
Wavelength Repeatability	± 1nm
Stray Energy	< 2% @ 400nm
Photometric Range	0% - 100% T, 0 - 1.99 Abs
Photometric Accuracy	± 2%
Photometric Noise	± 1.0%
Data Port	USB
Light Source	Tungsten Halogen Lamp 6V/10W
Power Requirements	110-120V/60Hz Switchable 220V-240V/50Hz
Instrument Dimensions	16"W x 12"D x 8"H 406mm x 305mm x 205mm
Instrument Weight	15 lbs (7kg)

S90-301 Optical glass Round Cuvets

Item No.	Description
S1000	Model S1000 Spectrophotometer, 20nm, 110V
S1000E	Model S1000E Spectrophotometer, 20nm, 220V
S1100-505	Replacement Tungsten Halogen Bulb, 6V / 10 Watt
S1000-401	Application Software for Windows
S1100-115	COD Vial Sample Holder
S90-301	Optical glass Round Cuvets, Pk/12
S90-304G	Optical glass Square Cuvets, Pk/2

S1100 Series Visible Spectrophotometers

S1100 Series offers your choice of 10 and 20nm models and is designed for use with 1/2" (13mm) round tubes or10mm square cuvets. Optional tube holders are also available for COD, 3/4" and 1" round tubes. An adapter is supplied at no additional charge for 10mm square cuvets.

High quality silicon photodiode detector and 1200 lines/mm grating assures high performance. Auto zero function, one-touch blanking and built-in, automatic filters for easy operation. Large digital display allows quick and easy readings.

Both models in the S1100 Series work with optional Windows® based software for easy data collection and application expansion to Standard Curve and Kinetics, Abs. and %T. Data can be easily exported to Microsoft Excel® for further processing and analysis. . The software is designed for Windows based PC's, using Windows 2000, ME, or XP.

Model S1100 measures Absorbance, Transmittance and now includes a USB port; while Model S1100RS features both USB and RS-232C ports along with Absorbance, Transmittance plus Concentration (C) and Factor (F) modes.

Each Series 1100 Spectrophotometer comes complete with a manual, 12 round optical glass cuvets, a square cuvet adapter, and dust cover.

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Close-up view of S1100 instrument panel

	S1100
Wavelength Range	335-1000nm
Slit Width	20nm
Optical System	Single Beam, Grating System 1200 lines/mm
Wavelength Accuracy	± 2nm
Wavelength Repeatability	± 1nm
Photometric Range	0% to 125% T, 0 to 2.0 Abs
Photometric Accuracy	± 2% T
Stray Light	Less than or equal to 0.5%T at 340 and 400nm
Data Port	USB
Light Source	Tungsten Halogen Lamp 6V/10W
Sample Compartment	Accommodates one inch round tube with optional holder
Power Requirements	110-120V/60Hz Switchable 220V-240V/50Hz
Instrument Dimensions	16"W x 12"D x 8"H 406mm x 305mm x 205mm
Instrument Weight	13 lbs (6 kg)

View of S1100 USB Data Port

Item No.	Description
S1100	Model S1100 Spectrophotometer, 20nm, 110V
S1100E	Model S1100 Spectrophotometer, 20nm, 220V
S1100-401	UNICO Application Software for PC's
S90-301	Round Optical Glass Cuvets, 10 mm, Box/12
S90-304G	Square Optical Glass Cuvets, 10 mm, Pk/2

Contact UNICO for additional parts and accessories

Se habla español. Visítenos en el Internet: www.unicosci.com/espanol o llámenos por teléfono al 609-240-5507.

S1100RS Series
Visible Spectrophotometers

S1100RS Series features an accurate 10nm bandpass model and is designed for use with 1/2" (13mm) round tubes or10mm square cuvets. Optional tube holders are also available for COD, 3/4" and 1"round tubes. An adapter is supplied at no additional charge for 10mm square optical glass cuvets.

High quality silicon photodiode detector and 1200 lines/mm grating assures high performance. Auto zero function, one-touch blanking and built-in, automatic filters for easy operation. Large digital display allows quick and easy readings.

Both models, the S1100RS and S1100RSE work with optional Windows® based software for easy data collection and application expansion to Standard Curve and Kinetics, Abs. and %T and Concentration, etc. Data can be easily exported to Microsoft Excel® for further processing and analysis. The software is designed for Windows based PC's, using Windows 2000, ME, or XP.

Models S1100RS and S1100RSE feature both USB and RS-232C ports along with Absorbance, Transmittance, Concentration (C) and Factor (F) modes. Each mode can be quickly selected with the touch of a button (please see the close-up photo of the instrument control panel on this page).

Each S1100RS Series spectrophotometer comes complete with an Operation Manual, 12 round optical glass cuvets, a square cuvet adapter, and dust cover.

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Close-up view of S1100RS instrument panel

S1100RS shown with Cuvet Holder closed

View of S1100RS USB and RS232 Data Ports

	S1100RS
Wavelength Range	335-1000nm
Slit Width	10nm
Optical System	Single Beam, Grating System 1200 lines/mm
Wavelength Accuracy	± 2nm
Wavelength Repeatability	± 1nm
Photometric Range	0% to 125% T, 0 to 2.0 Abs 0 to 1999C (0 to 1999F)
Photometric Accuracy	± 1% T
Stray Light	Less than or equal to 0.5%T at 340 and 400nm
Data Port	USB and RS-232
Light Source	Tungsten Halogen Lamp 6V/10W
Sample Compartment	Accommodates one inch round tube with optional holder
Power Requirements	220V-240V/50Hz 110-120V/60Hz Switchable
Instrument Dimensions	16"W x 12"D x 8"H 406mm x 305mm x 205mm
Instrument Weight	13 lbs (6 kg)

Item No.	Description
S1100RS	Model S1100RS Spectrophotometer, 10nm, 110V
S1100RSE	Model S1100RSE Spectrophotometer, 10nm, 220V
S1100-401	UNICO Application Software for PC's
S90-301	Round Optical Glass Cuvets, 10 mm, Box/12
S90-304G	Square Optical Glass Cuvets, 10 mm, Pk/2

Contact UNICO for additional parts and accessories

S1200 Series Visible Spectrophotometers

UNICO S1200 Series is the best value in a precise, accurate 5nm design. High quality silicon photodiode detector and 1200 lines/mm diffraction grating assures high performance. Large digital display and built-in, automatic filters for easy operation. 1200's feature Absorbance, Transmittance, Factor and Concentration modes, also automatic zeroing and blanking with the touch of a single button.

The S1200 Series feature both USB and RS-232C ports for data transfer and you can select optional Windows® based software for easy data collection and application expansion to standard curve and kinetics, Abs. and %T. Data can be easily exported to Microsoft Excel® for further processing, analysis and storage. Software can be used with Windows 2000, ME and XP.

Bulb changes are quick and easy when needed and require no tools, or alignment. The large sample compartment can accept cuvets up to 50 mm path length and can accept a variety of optional accessories. The easy-to-use UNICO S1200 ideal for any standard spectrophotometer application, while staying within a conservative budget.

Model S1200 comes standard with a V-type round tube holder, a single square cuvet holder, 12 round optical glass cuvets, a set of two optical square glass cuvets, operation manual and dust cover.

Model S1201 comes standard with a 4-cell (four position) 10 mm, square cuvet changer, set of two optical glass square cuvets, manual and dust cover.

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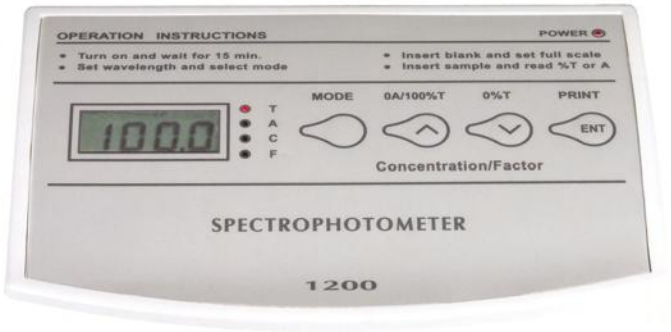
S1200's 50mm pathlength sample chamber accepts a wide variety of cells and accessories



Close-up view of S1200 instrument panel

S1200 shown with Cuvet Holder closed

Item No.	Description
S1200	Model S1200 with V-Type tube holder, 5nm, 110V
S1200E	Model S1200E with V-Type tube holder, 5nm, 220V
S1201	Model S1201 with 4 position cell holder, 5nm, 110V
S1201E	Model S1201E with 4 position cell holder, 5nm, 220V
S1200-401	UNICO Application Software for PC's
S90-301	Round Optical Glass Cuvets, 10 mm, Box/12
S90-304G	Square Optical Glass Cuvets, 10 mm, Pk/2

Contact UNICO for pricing, additional parts and accessories

	S1200
Wavelength Range	325-1000nm
Slit Width	5nm
Optical System	Single Beam, Grating System 1200 lines/mm
Wavelength Accuracy	± 2nm
Wavelength Repeatability	± 1nm
Photometric Range	0% T to 125% T 0 to 2.0 A 1 to 999 C (0 to 1999 F)
Photometric Accuracy	±1% T
Stray Light	Less than or equal to 0.5%T at 340 and 400nm
Light Source	Tungsten Halogen Lamp 6V/10W
Data Ports	USB and RS-232C
Sample Compartment	Accommodates 50mm pathlength cuvet with optional holder
Power Requirements	110-120V/60Hz Switchable / 220V-240V/50Hz
Instrument Dimensions	16"W x 12"D x 7"H 408mm x 308mm x 180mm
Instrument Weight	15 lbs (6.5 kg)

Close-up view of S1205 instrument panel with four-line digital display.

USB and RS-232 ports.

S1205 Visible Spectrophotometers

UNICO S1205 is a new, advanced design, expanding on the capabilities of its analog cousin, the S1200. The S1205 is an all digital, fully programmable spectrophotometer with 5nm accuracy and push button, digital key pad wavelength change. This versatile instrument features a wide sample compartment and can accept cuvets up to 50 mm path-length and a variety of accessories. The wide path length and optional accessories make this unit ideal for water testing, environmental and petroleum industry testing.

The S1205 has a high quality silicon photodiode detector and 1200 lines/mm grating assures high performance. Easy to read four (4) line digital display and built-in filters make your tests a snap. Features quick and easy automatic blanking with the push of a button.

Turn your S1205 into a very cost effective scanning spectrophotometer with the optional Windows based software package. The S1205 is capable of storing and recalling up to 200 standard curves and 500 test data results in its integrated memory. The S1205's feature both a USB and RS232 ports for interfacing with a computer. The S1205 features optional Windows® based application software for easy data collection and application expansion ranging from wavelength scanning; to standard curve, kinetics, Abs. and %T. Data can be easily exported to Microsoft Excel® for further processing, analysis and storage. Software is designed for Windows 2000, ME and XP.

With a variety of optional accessories, the easy-to-use S1205 is ideal for any standard spectrophotometer applications, while staying within a conservative budget. Model S1205 comes standard with a 4-cell square 10 mm path length cuvet changer, set of two optical glass square cuvets, manual and dust cover.

Wavelength Scanning Software:

Use the optional software to do a complete wavelength scan, or set the range of scan that best fits your application.

1. Automatically record peaks and valleys
2. Re-scaling axes, curves

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Item No.	Description
S1205	Model S1205 with 4 position cell holder, 5nm, 110V
S1205E	Model S1205E with 4 position cell holder, 5nm, 220V
S1205-401	UNICO Application Software for PC's
S90-301	Round Optical Glass Cuvets, 10 mm, Box/12
S90-304G	Square Optical Glass Cuvets, 10 mm, Pk/2

Contact UNICO for pricing, additional parts and accessories

S1205 Features and Specifications:

- Self-Calibration Feature: Instrument can perform an automated system check and calibration covering: Bulb, filter positioning, and wavelength check
- Utility Folder: From the List, the user can select Recalibrate System, Check Dark Current for diagnostic purposes, re-set time, and more
- Programmability:
  1. Can pre-pre-program up to 200 test methods, and store 500 results
  2. Program Test and Workflow Management: Can create list(s) from the "RUN TEST LIST Menu", of favorite tests, or most commonly used tests, or for a specific sequence of tests you plan to run, etc.
- USB port for data transfer and software upgrades (upgrades are no charge).
- Memorize the settings of last test, wavelength, settings, filter, etc.
- With the S-1205 Windows based software, has a scanning feature of the full wavelength range. User can define the scanning range, starting and ending wavelength, or do a full visible wavelength range scan from 325-1000 nm

	S1205
Wavelength Range	325 - 1000 nm Visible Wavelength
Slit Width	5 nm
Optical System	Single Beam, Grating System 1200 lines/mm
Wavelength Accuracy	± 2nm
Wavelength Repeatability	± 1nm
Wavelength Resolution (display)	1nm
Photometric Accuracy	±0.004 A at 0.5 A
Photometric Range	0% T to 125% T -0.3 to 2.5 A -9999 to 9999
Photometric Repeatability	±0.003 A at 0.5 A
Stray Light	Less than or equal to 0.3% T at 340 nm
Stability	±0.002 A/hr at 500 nm after 1 hr. warm-up
Baseline flatness	±0.010 A with software
Display	LCD (4 line x 20 characters)
Light Source	Tungsten Halogen Lamp
Control Buttons	9 buttons
Printer Port	RS-232
PC Communication Port	USB
Cuvet Capacity	Up to 50 mm pathlength (with longpath cell holder, optional)
Cell Holder	Single or 4 cell, manual
Abs / %T Mode	Display: Abs and % T
Quantitative Mode	Standard curve: 1st through zero, 1st, Factor
Memory Capability	Up to 200 standard curves
Utility	Dark current, system self calibration
Power Requirements	100-240 VAC, 100W
Instrument Dimensions	20"W x 17"D x 8"H 420mm x 340mm x 180mm
Instrument Weight	19 lbs (8.5 kg)
Warranty	One year

Accessories for Models S1200 and S1205

S1200-101 with cell

Universal Test Tube Holder (Cat. No. S1200-101)

Universal test tube holder with base for 8 to 25mm diameter test tubes including COD.

Single Cell Holder (Cat. No. S1200-102)

Single cell holder with base for 10mm square cuvets.

S1200-102

S1200-103 with cells

Four-Position Cell Holder (Cat. No. S1200-103)

Four-position cell holder for 10mm square cuvets.

Longpath Cell Holder (Cat. No. S1200-104)

Longpath four-position cell holder for up to 50mm rectangular cuvets.

S1200-104

S1200-105

Water-jacketed Cell Holder (Cat. No. S1200-105)

Water-jacketed 10mm single cell holder with base and panel for temperature control applications (requires water bath).

Two-in-One Cell Holder (Cat. No. S1200-108)

Holds either a 100mm square or a 10mm round cuvet.

S1200-108

S2100+ and S2100+P Visible Programmable Spectrophotometers

UNICO is proud to introduce the new S2100+ Series spectrophotometers. This new series offers software-based wavelength scanning and models with built-in printers (S2100+P). These new spectros are programmable, affordable, and simple to use; while providing excellent results.

The large 4-line LCD display can be read from any angle. The touch buttons make commanding easy and data entry quick and convenient. The menu is task driven and makes using your 2100+ user-friendly. A large on-board memory is capable of storing up to 200 test methods (standard curves) and saving up to 500 test data.

Each unit comes standard with both USB and RS-232 data ports for communication. Two optional features make documentation and reporting a snap; optional software for PC's which includes scanning capability, and units with Built-in printers (S2100+P series).

The USB port can be used for both data transfer and software upgrades. Periodically we make system upgrades, and you will be able to update the functionality of your S2100+ at no charge via the USB port whenever upgrades are available; please contact UNICO for details.

The optional Windows® XP based software expands the capabilities of the instrument including Standard Curves, Kinetics, Abs. & %T, and wavelength scanning. Data can be easily exported to Excel® for further processing, analysis and storage.

The S2100+ comes standard with an operation manual, dust cover, and a set of 4 10 mm square optical glass cuvets.

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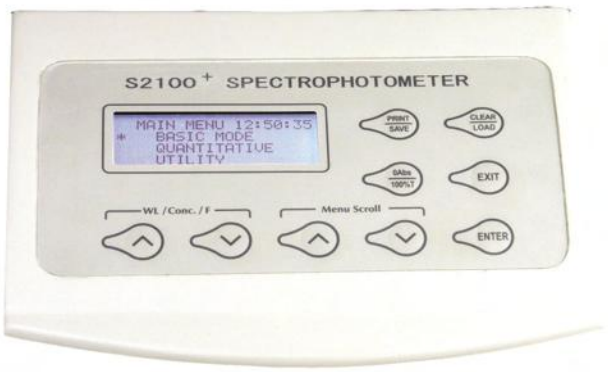
USB and RS-232 ports.

Close-up view of optional built-in printer.

	S2100+ / S2100+P
Wavelength Range	325-1000 nm Visible Wavelength
Slit Width	4 nm
Optical System	Single Beam, Grating System 1200 lines/mm
Wavelength Accuracy	± 2nm
Wavelength Repeatability	± 1nm
Wavelength Resolution (display)	1nm
Photometric Accuracy	±0.004 A at 0.5 A
Photometric Range	0% T to 125% T -0.3 to 2.5 A -9999 to 9999
Photometric Repeatability	±0.003 A at 0.5 A
Stray Light	Less than or equal to 0.3% T at 340 nm
Stability	±0.002 A/hr at 500 nm after 1 hr. warm-up
Baseline flatness	±0.010 A with PC software
Display	LCD (4 line x 20 characters)
Control Buttons	9 buttons, Key Pad
Printer (optional)	Built-in Thermal Printer (optional)
Communication Ports	USB and RS-232
Cuvet Capacity	Up to 100 mm pathlength (with longpath cell holder, optional)
Cell Holder	Single or 4 cell, manual
Abs / %T Mode	Display: Abs and % T
Quantitative Mode	Standard curve: 1st through zero, 1st, Factor
Memory Capability	Up to 200 standard curves
Utility	Dark current, D2 on/off, system self calibration
Power Requirements	100-240 VAC, 100W
Instrument Dimensions	20"W x 17"D x 8"H 420mm x 340mm x 180mm
Instrument Weight	22 lbs (10 kg)
Warranty	One year



Close-up view of S2100+ instrument panel with four-line digital display.

Item No.	Description
S2100+	Model S2100+ with 4 position cell holder, 4nm, 110V
S2100+P	Model S2100+P with Built-in Printer, 4nm, 110V
S2100+E	Model S2100+E with 4 position cell holder, 4nm, 220V
S2100+PE	Model S2100+PE with Built-in Printer, 4nm, 220V
S2100-401	UNICO Application Software with WL Scanning for PC's
S90-304G	Square Optical Glass Cuvets, 10 mm, Pk/2
S90-309Q	Square Quartz UV Transparent Cuvets, 10 mm, Pk/2

Contact UNICO for additional parts and accessories

See pages 13 and 14 for S2100+ software and accessories.

UV-Visible Spectrophotometer Selection Guide

S2100UV+

Electromagnetic Spectrum:
Wavelength Range in Nanometers (nm):

Ultra-Violet (UV), Visible (Vis) and Infrared Light (IR)

- **Ultra-Violet (UV) Spectrum:** 200nm – 400nm
- **Visible Light Spectrum (Vis):** 400nm – 750nm
- **Infrared Spectrum (IR):** 750nm – 300,000nm

SQ3802

SQ2800

UNICO Visible Light Spectrophotometers
Wavelength Range by series:

- **S2100UV+ Series:** 200nm – 1,000nm
- **SQ2800 Series:** 190nm – 1,100nm
- **SQ3800 Series:** 190nm – 1,100nm
- **SQ4800 Series:** 190nm – 1,100nm

SQ4802

How do I select the right spectrophotometer for my applications? We can help. Contact UNICO by phone, fax, or e-mail and our technicians will be glad to help select the right instrument for your needs. Please see the Selection Guide below. This will help you understand the general specifications by model.

Model	Wavelength Range (nm)	Slit Width Bandpass	Cell Pathlength	Scanning	Absorbance Range	Concentration Conc., C	Photometric Accuracy	Data Port(s)	Light Beam	Printer	Voltage Pre-set	Pg.
S2100UV+	200-1000 nm	4 nm	100 mm	Via PC	0.3-2.5A	0 - 9999	.004 @ 0.5 A	USB & RS232	Single	Optional	110 Volt	**12**
S2100UV+E	200-1000 nm	4 nm	100 mm	Via PC	0.3-2.5A	0 - 9999	.004 @ 0.5 A	USB & RS232	Single	Optional	220 Volt	**12**
S2100UV+P	200-1000 nm	4 nm	100 mm	Via PC	0.3-2.5A	0 - 9999	.004 @ 0.5 A	USB & RS232	Single	Built-in	110 Volt	**13**
S2100UV+PE	200-1000 nm	4 nm	100 mm	Via PC	0.3-2.5A	0 - 9999	.004 @ 0.5 A	USB & RS232	Single	Built-in	220 Volt	**13**
SpectroQuest™												
SQ2800	190-1100 nm	4 nm	100 mm	Yes	0.3-3A	0 - 9999	.004 @ 0.5 A	USB & RS232	Single	Optional	110 Volt	**16**
SQ2800E	190-1100 nm	4 nm	100 mm	Yes	0.3-3A	0 - 9999	.004 @ 0.5 A	USB & RS232	Single	Optional	220 Volt	**16**
SQ2800P	190-1100 nm	4 nm	100 mm	Yes	0.3-3A	0 - 9999	.004 @ 0.5 A	USB & RS232	Single	Built-in	110 Volt	**16**
SQ2800PE	190-1100 nm	4 nm	100 mm	Yes	0.3-3A	0 - 9999	.004 @ 0.5 A	USB & RS232	Single	Built-in	220 Volt	**16**
SQ2802	190-1100 nm	1.8 nm	100 mm	Yes	0.3-3A	0 - 9999	.004 @ 0.5 A	USB & RS232	Single	Optional	110 Volt	**17**
SQ2802E	190-1100 nm	1.8 nm	100 mm	Yes	0.3-3A	0 - 9999	.004 @ 0.5 A	USB & RS232	Single	Optional	220 Volt	**17**
SQ2802S	190-1100 nm	1, 1.8, 4 nm	100 mm	Yes	0.3-3A	0 - 9999	.004 @ 0.5 A	USB & RS232	Single	Optional	110 Volt	**17**
SQ2802SE	190-1100 nm	1, 1.8, 4 nm	100 mm	Yes	0.3-3A	0 - 9999	.004 @ 0.5 A	USB & RS232	Single	Optional	220 Volt	**17**
SQ2802PCS	190-1100 nm	1, 1.8, 4 nm	100 mm	Yes	0.3-3A	0 - 9999	.004 @ 0.5 A	USB & RS232	Single	Optional	110 Volt	**17**
SQ2802PCSE	190-1100 nm	1, 1.8, 4 nm	100 mm	Yes	0.3-3A	0 - 9999	.004 @ 0.5 A	USB & RS232	Single	Optional	220 Volt	**17**
SQ3802	190-1100 nm	1.8 nm	100 mm	Yes	0.3-3A	0 - 9999	.004 @ 0.5 A	USB & RS232	Split	Optional	110 Volt	**18**
SQ3802E	190-1100 nm	1.8 nm	100 mm	Yes	0.3-3A	0 - 9999	.004 @ 0.5 A	USB & RS232	Split	Optional	220 Volt	**18**
SQ4802	190-1100 nm	1.8 nm	100 mm	Yes	0.3-3A	0 - 9999	.004 @ 0.5 A	USB & RS232	Double	Optional	110 Volt	**19**
SQ4802E	190-1100 nm	1.8 nm	100 mm	Yes	0.3-3A	0 - 9999	.004 @ 0.5 A	USB & RS232	Double	Optional	220 Volt	**19**

S2100UV+ UV/Vis Spectrophotometers

UNICO is proud to introduce the new S2100UV+ Series UV/Vis spectrophotometers. This new series offers software-based wavelength scanning and models with built-in printers (S2100UV+P). These new spectros are programmable, affordable, and simple to use; while providing excellent results.

The large 4-line LCD display can be read from any angle. The touch buttons make commanding easy and data entry quick and convenient. The menu is task driven and makes using your 2100UV+ user-friendly. A large on-board memory is capable of storing up to 200 test methods (standard curves) and saving up to 500 test data.

Each unit comes standard with both USB and RS-232 data ports for communication. Two optional features make documentation and reporting a snap; optional software for PC's which includes scanning capability, and units with Built-in printers (S2100+P series).

The USB port can be used for both data transfer and software upgrades. Periodically we make system upgrades, and you will be able to update the functionality of your S2100+ at no charge via the USB port whenever upgrades are available; please contact UNICO for details.

The optional Windows® XP based software expands the capabilities of the instrument including Standard Curves, Kinetics, Abs. & %T, DNA/Protein ratio and wavelength scanning. Data can be easily exported to Excel® for further processing, analysis and storage.

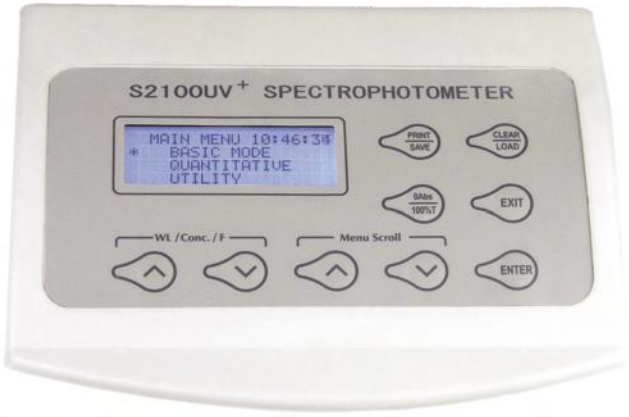
The S2100UV+ comes standard with an operation manual, dust cover, a set of two 10 mm UV Transparent Quartz cuvets and a set of four 10 mm square optical glass cuvets.

CE Approved

USB and RS-232 ports.

Close-up view of optional built-in printer.

	S2100UV+
Wavelength Range	200 - 1000 nm Visible Wavelength
Slit Width	4 nm
Optical System	Single Beam, Grating System 1200 lines/mm
Wavelength Accuracy	± 2nm
Wavelength Repeatability	± 1nm
Wavelength Resolution (display)	1nm
Photometric Accuracy	±0.004 A at 0.5 A
Photometric Range	0% T to 125% T -0.3 to 2.5 A -9999 to 9999
Photometric Repeatability	±0.003 A at 0.5 A
Stray Light	Less than or equal to 0.3% T at 220 nm and 340 nm
Stability	±0.002 A/hr at 500 nm after 1 hr. warm-up
Baseline flatness	±0.010 A with PC software
Display	LCD (4 line x 20 characters)
Control Buttons	9 buttons, Key Pad
Printer (optional)	Built-in Thermal Printer (optional)
Communication Ports	USB and RS-232
Cuvet Capacity	Up to 100 mm pathlength (with longpath cell holder, optional)
Cell Holder	Single or 4 cell, manual
Abs / %T Mode	Display: Abs and % T
Quantitative Mode	Standard curve: 1st through zero, 1st, Factor
Memory Capability	Up to 200 standard curves
Utility	Dark current, D2 on/off, system self calibration
Power Requirements	100/220V switchable, 150W
Instrument Dimensions	20"W x 17"D x 8"H 420mm x 340mm x 180mm
Instrument Weight	22 lbs (10 kg)
Warranty	One year



Close-up view of S2100UV+ instrument panel with four-line digital display.

Item No.	Description
S2100UV+	Model S2100UV+ with 4 position cell holder, 4nm, 110V
S2100UV+P	Model S2100UV+P with Built-in Printer, 4nm, 110V
S2100UV+E	Model S2100UV+E with 4 cell holder, 4nm, 220V
S2100UV+PE	Model S2100UV+PE with Built-in Printer, 4nm, 220V
S2100-401	UNICO Application Software with WL Scanning for PC's
S90-304G	Square Optical Glass Cuvets, 10 mm, Pk/2
S90-309Q	Square Quartz UV Transparent Cuvets, 10 mm, Pk/2

Contact UNICO for additional parts and accessories

S2100+ Series Options and Accessories

Test Tube Holder (Item #S2100-101P)

Test tube holder kit for 8-20mm diameter test tubes. Includes universal base, V-type tube holder. The maximum tube height is 100mm.

S2100-101P

S2100-102P

Long Path Cell Holder (Item #S2100-102P)

Rectangular long path cell holder kit for single cell up to 100mm pathlength. Includes a universal base and one cell holder.

Single Square Cell Holder (Item #S2100P-103P)

Single square cell holder 10mm pathlength cuvet.

S2100P-103P

S2100-104P with cell

Cylindrical Cell Holder (Item #S2100-104P)

Cylindrical cell holder kit for single cell up to 100mm pathlength (20mm diam.). Includes a universal base and one holder.

Water-Jacketed Cell Holder (Item #S2100P-105P)

Water-Jacketed single cell holder kit including a universal base and one water-jacketed cell holder for 10mm square cuvet. It maintains desired temperature by circulating constant-temperature water from a Water Bath (water bath required but not included).

S2100P-105P

S2100-106P

Micro Cell Holder (Item #S2100-106P)

Measure a sample with small volumes of 100 uL using micro cell holder. The x-y adjustable mechanism is used to align cell with optical beam for optimized results.

Peltier Unit (Item #S2100-107P)

Peltier unit for continuous temperature control from 15° to 40° C. The x-y adjustable mechanism is used to align cell with optical beam for micro flow cell setup. The temperature display resolution is 0.1° C. The unit consists of a controller and a thermoelectrically controlled cell holder.

S2100-107P

S2100P-108P

Ambient Sipper Unit (Item #S2100P-108P)

Sipper system for single cell flow thru. The x-y adjustable mechanism is used to align cell with optical beam for micro flow cell setup. The sipper unit consists of a flow-thru controller with peristaltic pump and a flow-thru front panel (flow cell and tubing not included). Note: requires flow cell and proper tubing to complete flow thru setup.

Peltier/Sipper System (Item#S2100P-109P)

S2100P-109P

Peltier/Sipper system for single 10mm cell flow thru and continuous temperature control from 15° to 40° C. The x-y adjustable mechanism is used to align cell with optical beam for micro flow cell setup. The temperature display resolution is 0.1° C. The unit consists of a Petier/Sipper controller with peristaltic pump and a thermoelectrically temperature controlled cell holder with panel. The unit can be used as flow thru only or temperature control only. Note: requires flow cell and proper tubing to complete flow thru setup.

S2100-110P

Reflectance Measurement Attachment (5° incident angle) (Item #S2100-110)

The technique of reflectance measurement is used for evaluation of materials relative to a reflectance surface. The minimum sample is (L) 30 x (W) 30 mm.

Four-Position Cell Holder (Item #S2100-111)

Four-position cell holder for 10mm square cuvets.

S2100-111

S2100+ and S2100UV+ Series Spectrophotometer Application Software (S2100P-401)

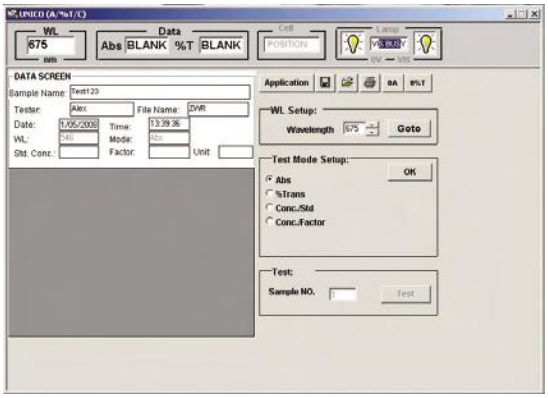
This software is designed for Windows® 2000, ME, or XP operating systems. Install the Windows based software and start collecting your data.

The UNICO Application Software expands your applications, assists in your data documentation and provides complete control of the spectrophotometer from a computer, rather than the instrument panel.

Applications include:

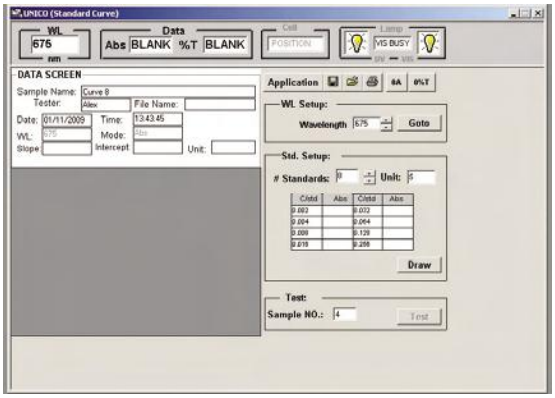
1. Abs./%T/Conc.
2. Standard Curve (Quantitative)
3. Kinetics (Abs. vs. Time)
4. Scanning
5. DNA/Protein Ratio (UV Range only)

Abs/%T/Conc



Measure absorbance, transmittance or concentration with standard or known factor.

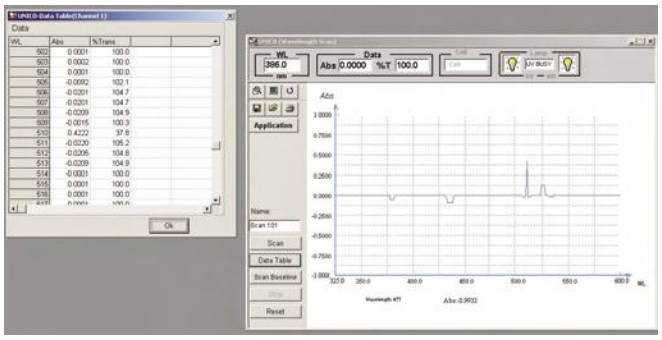
Quantitative (Standard Curve)



Use up to 8 standards to establish standard curves. Features four methods for fitting a curve:

1. Linear fit
2. Linear fit through zero
3. Square fit
4. Segmented

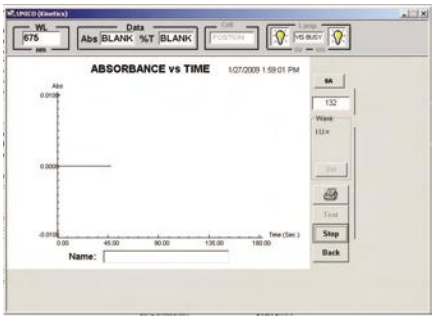
Wavelength Scanning Software



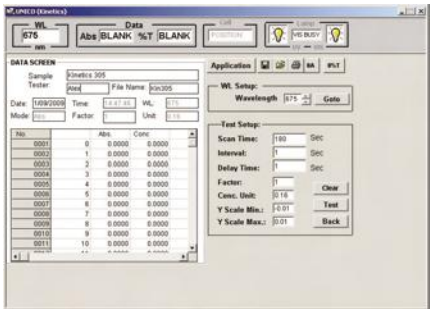
1. Full or partial wavelength scans; set the range required by application
2. Automatically record peaks and valleys
3. Re-scaling axes, curves

Kinetics (Abs vs. Time)

The Kinetics mode may be used for time course scanning or reaction rate calculations. Abs. vs. time graphs is displayed on the screen in real time and saved.



Wait time, measurement time and time intervals may be entered.



DNA/Protein

Concentration and DNA purity are calculated: Absorbance ratios 260nm/280nm with optional subtracted absorbance at 320nm.

DNA Concentration = 62.9 x A260 – 36.0 x A280

Protein Concentration = 1552 x A260 – 757.3 x A280

Additional wavelengths and factors may be programmed and saved. Please note: this feature can only be used with S2100UV+ Series spectrophotometers.

SpectroQuest™ Line of UV/Vis Scanning Spectrophotometers

UNICO is proud to introduce the all-new complete SpectroQuest™ line of UV-Visible spectrophotometers. The SpectroQuest line consists of four distinct series to meet the broad requirements of education, industrial and research applications:

- SQ-2800 Series Single Beam 4nm UV/Vis spectrophotometer
- SQ-2802 Series Single Beam 1.8nm or variable slits UV/Vis spectrophotometer
- SQ-3802 Series Split Beam 1.8nm UV/Vis spectrophotometer
- SQ-4802 Series Double Beam 1.8nm UV/Vis spectrophotometer

All SpectroQuest spectrophotometers feature high performance sealed optics mounted on a stable machined platform. The innovative optical layout and state of art monochromator with high-grade blazed holographic grating ensure accuracy. Its integrated design assures long-term stability and durability. The precisely aligned detector and quality deuterium and halogen lamps enhance the precision across the UV/Vis spectrum starting from 190nm and into the near-infrared (NIR) 1100nm. The comprehensive features, sophisticated powerful software, variety of accessories and model configurations will meet or exceed your expectations for performance and value.

Features at a Glance:

- Choice of single beam, split beam or double beam designs
- Fixed or variable slits (bandwidths)
- PC models or Stand-alone models with large LCD display
- Optional built-in printer on SQ2800 models
- Non-volatile memory storage and one-button easy recall
- Sealed keypad with alpha-numeric entry for user file names and settings
- Pre-aligned deuterium lamp for easy lamp replacement. Lamp usage and the status of the lamps may be monitored
- All models with USB and RS-232 ports for communication and software upgrades
- Powerful built-in or PC Windows software including sophisticated utility programs
- Data Download-to-PC software for stand-alone models (optional)
- Software upgrade capability
- Real-time clock for date and time stamping of results
- Performance validation and report (GLP compliance)
- **Full CE compliance**

UNICO continues to use Tungsten-Halogen (Visible) and Deuterium (UV) light sources for the added stability these light sources provide as compared to Xenon sources.

SQ-2800

SQ-2802

SQ-3802

SQ-4802

SQ-2800 Single Beam UV/Vis Spectrophotometers

SQ-2800 shown with 100 mm sample compartment open

SQ-2800 is the most economic general-purpose design in the SpectroQuest line. It is a stand-alone model with 4nm fixed bandwidth and has all the features that SpectroQuest line offers for a stand-alone unit. It provides excellent performance for measurements in the range of 190nm to 1100nm. It has a large angled LCD screen with contrast adjustment for comfortable viewing in a variety of room conditions. The large sample compartment (100 mm) accommodates a wide range of cell holders and accessories including peristaltic sipper and peltier system. Optional PC download software and PC Windows® application software make this instrument very versatile. SQ2800P Models are available with built-in printers.

	SQ-2800
Wavelength Range	190 - 1100 nm
Slit Width	4 nm
Optical System	Single Beam, Grating System 1200 lines/mm
Wavelength Accuracy	± 0.8 nm
Wavelength Resolution	± 0.1 nm
Wavelength Repeatability	± 0.5 nm
Photometric Range	0% T to 200% T -0.3 to 3 A 0 to 9999 Conc
Photometric Accuracy	± 0.5% T
Photometric Repeatability	Better than 0.3% T
Stray Light	Less than 0.15% T
Baseline Flatness	± 0.004 A
Stability	0.002 A/h @ 500 nm
Scanning Speed	High, Medium, Low Maximum 1000 nm/minute
Light Source	Halogen, Deuterium (pre-aligned)
Display	Graphic LCD (320 x 240) dots
Keyboard Control	29 Membrane keypad
Data Output	USB and RS232C, Parallel printer port
Sample Compartment	Accommodates 100mm pathlength cuvet with optional holder
Printer	Mini parallel printer optional
Power Requirements	110-120V/60Hz Switchable 220V-240V/50Hz
Instrument Dimensions	21.7"W x 16.5"D x 10.6"H 550mm x 420mm x 270mm
Instrument Weight	44 lbs (20 kg)
Warranty	One Year

	SQ-2800P
Wavelength Range	190 - 1100 nm
Slit Width	4 nm
Optical System	Single Beam, Grating System 1200 lines/mm
Wavelength Accuracy	± 0.8 nm
Wavelength Resolution	± 0.1 nm
Wavelength Repeatability	± 0.5 nm
Photometric Range	0% T to 200% T -0.3 to 3 A 0 to 9999 Conc
Photometric Accuracy	± 0.5% T
Photometric Repeatability	Better than 0.3% T
Stray Light	Less than 0.15% T
Baseline Flatness	± 0.004 A
Stability	0.002 A/h @ 500 nm
Scanning Speed	High, Medium, Low Maximum 1000 nm/minute
Light Source	Halogen, Deuterium (pre-aligned)
Display	Graphic LCD (320 x 240) dots
Keyboard Control	29 Membrane keypad
Data Output	USB and RS232C, Parallel printer port
Sample Compartment	Accommodates 100mm pathlength cuvet with optional holder
Printer	Built-in
Power Requirements	110-120V/60Hz Switchable 220V-240V/50Hz
Instrument Dimensions	21.7"W x 16.5"D x 10.6"H 550mm x 420mm x 270mm
Instrument Weight	44 lbs (20 kg)
Warranty	One Year

Item No.	Description
SQ2800	Model SQ2800 Scanning UV/Vis, 4nm, 110V
SQ2800E	Model SQ2800E Scanning UV/Vis, 4nm, 220V
SQ2800P	Model SQ2800P with Built-in Printer, 4nm, 110V
S2Q2800PE	Model SQ2800PE with Built-in Printer, 4nm, 220V
SQ2800-405	SpectroQuest Data Download Software for PC's
SQ2800-401	Advanced Application Software for PC's

Contact UNICO for additional parts and accessories

Did you know that UNICO services spectrophotometers? Contact us for more details.

SQ-2802 Series Single Beam UV/Vis Spectrophotometers

SQ-2802 series is an advanced single beam design consisting of three models: Stand-alone model SQ-2802 with 1.8nm fixed bandpass and model SQ-2802S with variable slits (1nm, 1.8nm, and 4nm); PC model SQ-2802PC with 1.8nm fixed bandpass and can be controlled either by the keypad, or remote controlled from a computer with the included software package.

SQ-2802 has all the features that SpectroQuest line offers in a stand-alone unit. The PC models come standard with Windows® based application software (PC not included) and can perform basic Abs./%T/Conc. tests without a PC. All instruments provide excellent performance and flexibility for your applications. The large sample compartment (100 mm) accommodates a wide range of cell holders and accessories including peristaltic sipper and peltier system.

	SQ-2802 / SQ-2802S
Wavelength Range	190 - 1100 nm
Slit Width	1.8 nm (SQ-2802) 1, 1.8, 4 nm (SQ-2802S)
Optical System	Single Beam, Grating System 1200 lines/mm
Wavelength Accuracy	± 0.3 nm
Wavelength Resolution	± 0.1 nm
Wavelength Repeatability	± 0.2 nm
Photometric Range	0% T to 200% T -0.3 to 3 A 0 to 9999 Conc
Photometric Accuracy	± 0.3% T
Photometric Repeatability	Better than 0.2% T
Stray Light	Less than 0.10% T
Baseline Flatness	± 0.002 A
Stability	0.002 A/h @ 500 nm
Scanning Speed	High, Medium, Low Maximum 1000 nm/minute
Light Source	Halogen, Deuterium (pre-aligned)
Display	Graphic LCD (320 x 240) dots
Keyboard Control	29 Membrane keypad
Data Output	USB and RS232C, Parallel printer port
Sample Compartment	Accommodates 100mm pathlength cuvet with optional holder
Printer	Mini parallel printer optional
Power Requirements	110-120V/60Hz Switchable 220V-240V/50Hz
Instrument Dimensions	24.5"W x 15.7"D x 11"H 620mm x 400mm x 280mm
Instrument Weight	48 lbs (22 kg)
Warranty	One Year

	SQ-2802PC / SQ-2802PCS
Wavelength Range	190 - 1100 nm
Slit Width	1.8 nm (SQ-2802PC) 1, 1.8, 4 nm (SQ-2802PCS)
Optical System	Single Beam, Grating System 1200 lines/mm
Wavelength Accuracy	± 0.3 nm
Wavelength Resolution	± 0.1 nm
Wavelength Repeatability	± 0.2 nm
Photometric Range	0% T to 200% T -0.3 to 3 A 0 to 9999 Conc
Photometric Accuracy	± 0.3% T
Photometric Repeatability	Better than 0.2% T
Stray Light	Less than 0.10% T
Baseline Flatness	± 0.002 A
Stability	0.002 A/h @ 500 nm
Scanning Speed	600 nm/minute
Light Source	Halogen, Deuterium (pre-aligned)
Display	20 x 2 LCD
Keyboard Control	8 Key Buttons (inactive when PC connected)
Data Output	USB and RS232C, Parallel printer port
Sample Compartment	Accommodates 100mm pathlength cuvet with optional holder
Printer	Mini parallel printer optional
Power Requirements	220V-240V/50Hz 110-120V/60Hz Switchable
Instrument Dimensions	24.5"W x 15.7"D x 11"H 620mm x 400mm x 280mm
Instrument Weight	53 lbs (24 kg)
Warranty	One Year

Item No.	Description
SQ2802	Model SQ2802 Scanning UV/Vis, 1.8nm, 110V
SQ2802E	Model SQ2802E Scanning UV/Vis, 1.8nm, 220V
SQ2802S	Model SQ2802S Scanning UV/Vis, Variable nm, 110V
S2Q2802SE	Model SQ2802SE Scanning UV/Vis, Variable nm, 220V
SQ2800-405	SpectroQuest Data Download Software for PC's
SQ2800-401	Advanced Application Software for PC's

Contact UNICO for additional parts and accessories

Item No.	Description
SQ2802PC	Model SQ2802PC Scanning UV/Vis, 1.8nm, 110V
SQ2802PCE	Model SQ2802PCE Scanning UV/Vis, 1.8nm, 220V
SQ2802PCS	Model SQ2802PCS Scanning UV/Vis, Variable nm, 110V
SQ2802PCSE	Model SQ2802PCSE Scanning UV/Vis, Variable nm, 220V
SQ2800-405	SpectroQuest Data Download Software for PC's
SQ2800-401	Advanced Application Software for PC's

Contact UNICO for additional parts and accessories

SQ-3802 Split Beam UV/Vis Spectrophotometers

SQ-3802 is a split beam, scanning design. It is a stand-alone model with 1.8nm fixed bandwidth and has all the features that SpectroQuest line offers in a stand-alone unit. The second detector is simultaneously monitoring the system stability to optimize measurement accuracy. It provides excellent performance for measurements in the range of 190nm to 1100nm. It has a large angled LCD screen with contrast adjustment. The large sample compartment (100 mm) accommodates a wide range of cell holders and accessories including peristaltic sipper and peltier system. Optional PC download software and PC Windows® application software make this a versatile instrument.

	SQ-3802
Wavelength Range	190 - 1100 nm
Slit Width	1.8 nm
Optical System	Split Beam, Grating System 1200 lines/mm
Wavelength Accuracy	± 0.3 nm
Wavelength Resolution	± 0.1 nm
Wavelength Repeatability	± 0.2 nm
Photometric Range	0% T to 200% T -0.3 to 3 A 0 to 9999 Conc
Photometric Accuracy	± 0.3% T
Photometric Repeatability	Better than 0.2% T
Stray Light	Less than 0.10% T
Baseline Flatness	± 0.002 A
Stability	0.001 A/h @ 500 nm
Scanning Speed	High, Medium, Low Maximum 1000 nm/minute
Light Source	Halogen, Deuterium (pre-aligned)
Display	Graphic LCD (320 x 240) dots
Keyboard Control	29 Membrane keypad
Data Output	USB and RS232C, Parallel printer port
Sample Compartment	Accommodates 100mm pathlength cuvet with optional holder
Printer	Mini parallel printer optional
Power Requirements	110-120V/60Hz Switchable 220V-240V/50Hz
Instrument Dimensions	24.5"W x 15.7"D x 11"H 620mm x 400mm x 280mm
Instrument Weight	50 lbs (23 kg)
Warranty	One Year

Peltier/Sipper System (Cat. No. SQ2800-109P)

Peltier/Sipper system for a single cell flow thru and continuous temperature control from 15° to 40° C. The x-y adjustable mechanism is used to align cell with optical beam for micro flow cell setup. The temperature display resolution is 0.1° C. The unit consists of a Peltier/Sipper controlled with peristaltic pump and a thermoelectrically temperature controlled cell holder with panel. The unit can be used a flow thru only or temperature control only.

Note: requires flow cell and proper tubing to complete flow thru setup.

SQ2800-109P

Item No.	Description
SQ3802	Model SQ3802 Split Beam UV/Vis, 1.8nm, 110V
SQ3802E	Model SQ3802E Split Beam UV/Vis, 1.8nm, 220V
SQ3802-401	Advanced Application Software for PC's

Contact UNICO for additional parts and accessories

When using a spectrophotometer in the UV range, you must use UV-transparent cuvets such as UNICO Quartz cuvets, or UV transparent plastic cuvets.

See page 26 for an extensive selection of UNICO cuvets.

SQ-4802 Double Beam UV/Vis Spectrophotometers

SQ-4802 is a double beam, scanning design. It is a stand-alone model with 1.8nm fixed bandwidth and has all the features that SpectroQuest line offers in a stand-alone unit. The two detectors are measuring both the test sample cell and reference sample cell simultaneously for optimizing measurement accuracy and stability. It provides excellent performance for measurements in the range of 190nm to 1100nm. It is suitable for pharmaceutical, biochemical and clinical lab applications as well as routine applications such as quantitative analyses, kinetics, spectrum scanning, multiple components and DNA/Protein. Optional PC download software and PC Windows® application software make this instrument versatile.

	SQ-4802
Wavelength Range	190 - 1100 nm
Slit Width	1.8 nm
Optical System	Double Beam, Grating System 1200 lines/mm
Wavelength Accuracy	± 0.3 nm
Wavelength Resolution	± 0.1 nm
Wavelength Repeatability	± 0.2 nm
Photometric Range	0% T to 200% T -0.3 to 3 A 0 to 9999 Conc
Photometric Accuracy	± 0.3% T
Photometric Repeatability	Better than 0.2% T
Stray Light	Less than 0.10% T
Baseline Flatness	± 0.002 A
Stability	0.001 A/h @ 500 nm
Scanning Speed	High, Medium, Low Maximum 1000 nm/minute
Light Source	Halogen, Deuterium (pre-aligned)
Display	Graphic LCD (320 x 240) dots
Keyboard Control	29 Membrane keypad
Data Output	USB and RS232C, Parallel printer port
Sample Compartment	Accommodates 100mm pathlength cuvet with optional holder
Printer	Mini parallel printer optional
Power Requirements	110-120V/60Hz Switchable 220V-240V/50Hz
Instrument Dimensions	24.5"W x 15.7"D x 11"H 620mm x 400mm x 280mm
Instrument Weight	53 lbs (24 kg)
Warranty	One Year

SQ-4802 shown with sample compartment open

Item No.	Description
SQ4802	Model SQ4802 Double Beam UV/Vis, 1.8nm, 110V
SQ4802E	Model SQ4802E Double Beam UV/Vis, 1.8nm, 220V
SQ4802-401	Advanced Application Software for PC's
SQ4802-120	Six-Position Auto Cell Changer

Contact UNICO for additional parts and accessories

SQ4802-120 Six-Position Auto Cell Holder

Powerful Integrated Software for Data Acquisition

1. Basic Mode

Absorbance, %T Transmittance or Concentration measurements.

2. Quantitative

Establish or use stored calibration equation to measure the concentration of unknowns.

3. WL scan

Spectrum scan of sample at any selected wavelength range with choice of scanning speed and wavelength interval. You can also select the scan speed: Low, Medium, or High.

4. Kinetics

Measurement of absorbance changing vs. time with reaction rate calculation function.

5. DNA/Protein

Calculation of concentration and DNA purity. Ratio at other wavelengths can be measured.

6. Multi Wavelength

Measurement at multiple wavelengths to analyze and determine the composition of the mixtures.

7. Utility – GLP

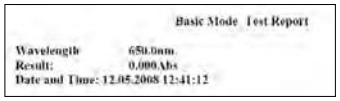
Utility programs offer wavelength and photometric accuracy validation for GLP compliance. It contains useful programs and tools such as re-set dark current, re-set lamp change-over wavelength, lamp usage set, set clock, etc.

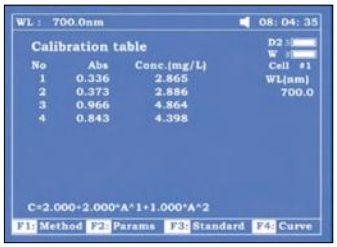
8. Defined Test

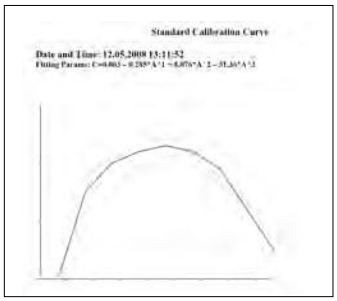
This is an open platform for use defined programs, multiple test protocols can be stored.

Basic Photometric Mode

Measures Absorbance, %T and Concentration with entry of Concentration Factor or the Concentration of the standard. Units such as ug/mL, mg/mL, g/L, ppb, ppm, %, I.U., mM/L, M/L may be selected or other units may be entered via the keypad. Continuous display of the result means there is no need to press a button to read.

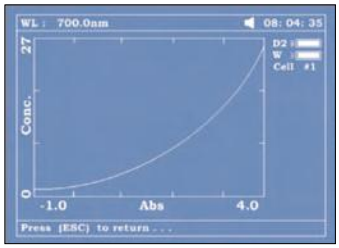


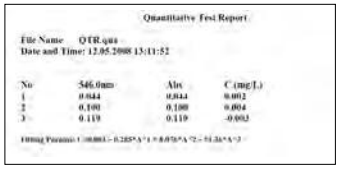




Quantitative

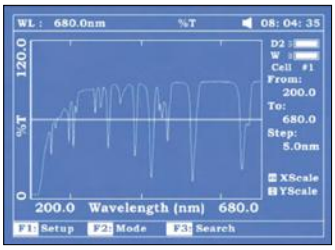
Up to 10 standard solutions may be used to establish calibration equation curve. Choice of four methods for fitting a curve through the calibration points: Linear fit, Linear fit through zero, square fit and cubic fit.

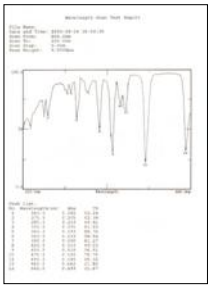




There are three kinds of correction methods:

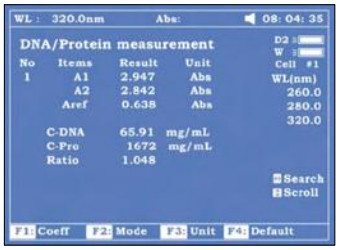
1. Single wavelength method
2. Iso-absorbance (two wavelength method):
   The absorbance at the measurement (peak) wavelength is measured relative to the absorbance at a second (valley) wavelength. This minimizes the effects of cell difference and turbidity
3. Three-point:
   The absorbance of the peak itself is measured by subtracting the calculated tangent joining the valleys on each side of the peak

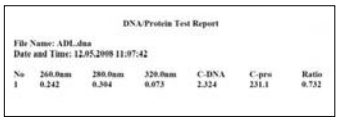




Wavelength Scanning

The wavelength scan intervals are 0.1, 0.2, 0.5, 1, 2, 5nm, and Hi, Medium and Low scan speeds are available. Scan speeds vary from 100 to 1000 nm/min. Wavelengths are scanned from high to low so that the instrument waits at high wavelengths. This minimizes the degradation of UV sensitive samples. Precise control of filter and lamp changes means that their effects are not seen on the final scan. Post-run manipulation includes re-scaling axes, curve tracking and peak picking.





DNA/Protein

Concentration and DNA purity are calculated:

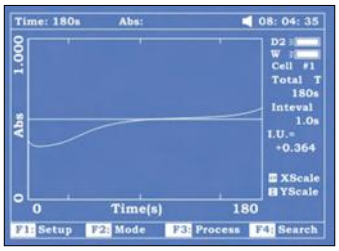
Absorbance ratios 260nm/280nm or 260nm/230nm

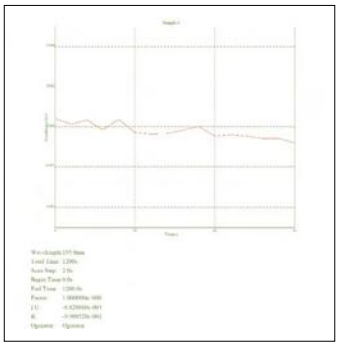
With optional subtracted absorbance at 320nm

DNA Concentration = 62.9 x A260 – 36.0 x A280 or 49.1 x A260 – 3.48 x A230
Protein Concentration = 1552 x A260 – 757.3 x A280 or 183 x A260 – 75.8 x A230

Kinetics

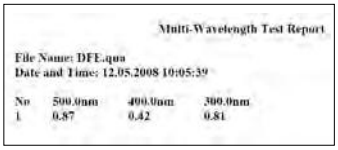
This mode may be used for time course scanning or reaction rate calculations. Abs. vs. time graphs are displayed on the screen in real time. Wait time and measurement time up to 12 hours may be entered with time intervals of 0.5, 1, 2, 5, 10, 30 secs and 1 min. Post-run manipulation includes re-scaling, curve tracking and selection of the part of the curve required for the rate calculation. Rate is calculated using a linear regression algorithm before multiplying by the entered factor.

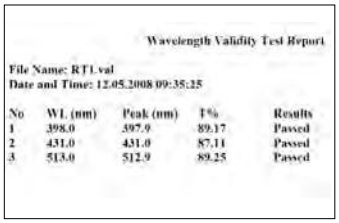




Multi-Wavelength

Up to 10 wavelengths may be entered, allowing the measurement of multiple wavelengths on a series of samples.





Performance Validation

for the GLP compliant laboratory

SpectroQuest spectrophotometers may be automatically self-calibrated on switch-on, using the 656.1nm deuterium emission line. This function may be repeated at any time.

The wavelength accuracy may be checked using the "WL Validity" program (wavelength calibration standards required).

The absorbance accuracy at several wavelengths may be checked using the "Accu Validity" program.

Each SpectroQuest spectrophotometer includes all of the functionality shown on pages 20 and 21 as a standard feature. See pages 22 and 23 for optional software packages to expand your applications.

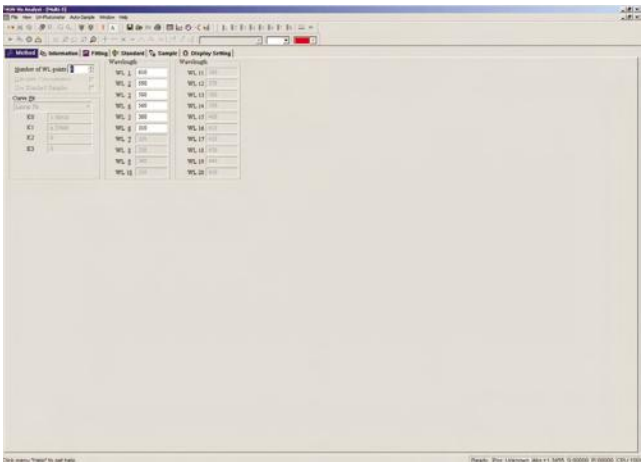
Optional Advanced Windows-Based Application Software

The SpectroQuest Windows®-based PC application software takes the best features of the integrated operating software plus more powerful data processing and expanded data collection and storage capability. It comes standard with SpectroQuest PC models (SQ-2802PC and SQ-2802PCS) and is optional on all other SpectroQuest models.

The PC application software offers:

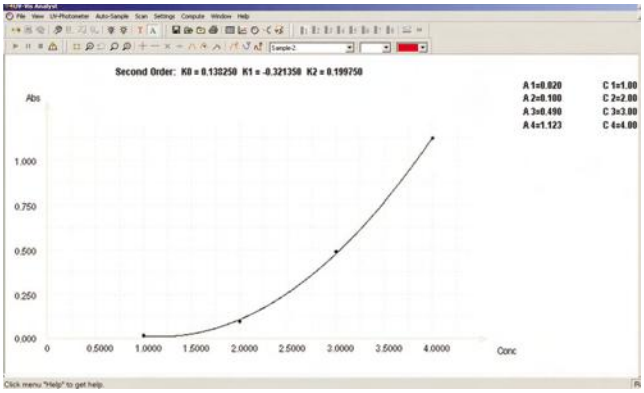
1. Abs/%T/Conc Test
2. Quantitative (standard curve)
3. Kinetics
4. Multi-wavelength Test
5. Wavelength Scanning
6. DNA/Protein

Multi-Wavelength



Up to 32 wavelengths can be selected and multiple samples can be measured. (Auto cell changer is required to run multiple samples automatically).

Quantitative (Standard Curve)

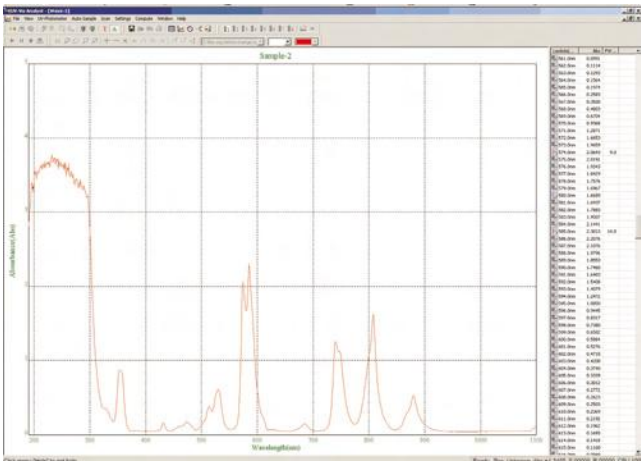


Use up to 32 standards to establish standard curve.

Four methods for fitting a curve:

1. Linear fit
2. Linear through zero
3. Square fit
4. Segmented

Wavelength Scanning

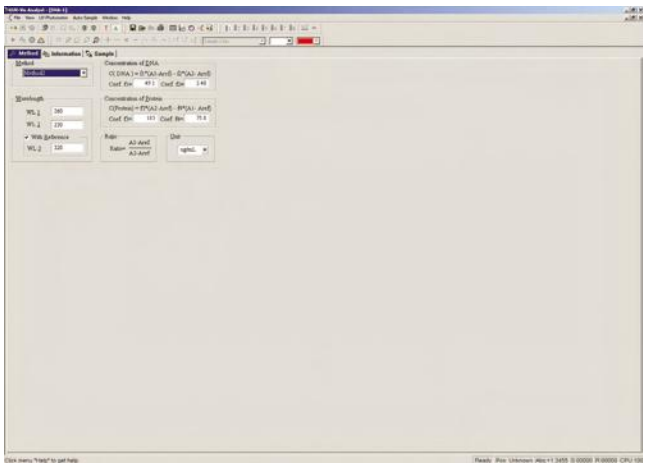


Automatically record peaks and valleys. Eight channels can simultaneously store up to 8 curves. Post-run manipulation and processing includes:

1. Re-scaling axes, curve
2. Smoothing, combination, zooming, overlap...
3. 1st to 4th derivative

The SpectroQuest Windows-based PC application software takes the best features of the integrated operating software plus more powerful data processing and expanded data collection and storage capability. It comes standard with SpectroQuest PC models (SQ-2802PC and SQ-2802PCS) and is optional on all other SpectroQuest models.

DNA/Protein



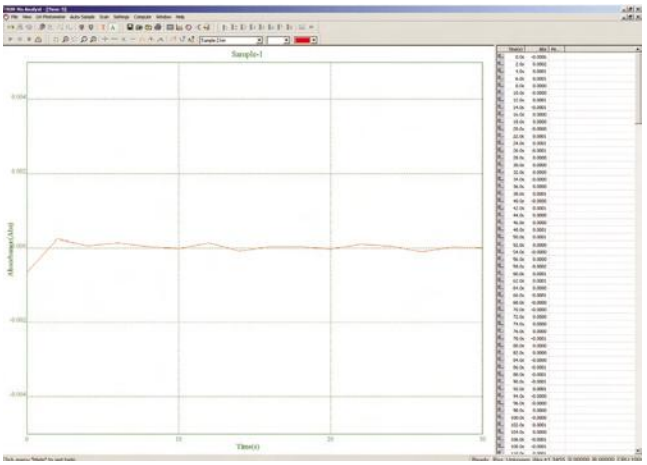
Concentration and DNA purity are quickly and easily calculated: Absorbance ratios 260nm/280nm with optional subtracted absorbance at 320nm.

DNA Concentration = 62.9 x A260 – 36.0 x A280

Protein Concentration = 1552 x A260 – 757.3 x A280

Other wavelengths and factors may be entered.

Kinetics (Abs vs. Time)



The Kinetics mode may be used for time course scanning or reaction rate calculations. Abs. vs. time graphs is displayed on the screen in real time.

Wait time, measurement time and time intervals may be entered.

Post-run manipulation includes re-scaling, curve tracking and selection of the part of the curve required for the rate calculation. Rate is calculated using a linear regression algorithm before multiplying by the entered factor.

Data Download Software (Cat. No. 2800-405)

The basic data download software is designed to download data stored in the spectrophotometer memory to a PC in a text file format for easy exporting into a spreadsheet.

Item No.	Description
SQ2800-401	Advanced Application Software for PC's (for SQ-2800 series)
SQ2800-405	Basic Data Download Software (for SQ-2800 and SQ-2802 models)
SQ3802-401	Advanced Application Software for PC's (for SQ-3800 series)
SQ4802-401	Advanced Application Software for PC's (for SQ-4800 series)

Se habla español. Visítenos en el Internet: www.unicosci.com/espanol o llámenos por teléfono al 609-240-5507.

Optional SpectroQuest Accessories

Test Tube Holder (Cat. No. SQ2800-101P)

Test tube holder kit for 8-20mm diameter test tubes. Includes universal base, V-type tube holder. The maximum tube height is 100mm.

SQ2800-101P

Water-Jacketed Cell Holder (Cat No. SQ2800-105P)

Water-jacketed single 10mm cell holder kit including universal base and one water-jacketed cell holder. It maintains desired temperature by circulating constant-temperature water from water bath (water bath required and not included).

SQ2800-105P

SQ2800-102P

4-Cell 100mm Long Path Cell Holder (Cat. No. SQ2800-102P)

Rectangular long path cell holder kit for 4 cells up to 100mm pathlength.

SQ2800-106P

Micro Cell Holder (Cat No. SQ2800-106P)

Measure a sample with volume of 100uL using micro cell holder. The x-y adjustable mechanism is used to align cell with optical beam for optimized results.

4-Cell 50mm Long Path Cell Holder (Cat No. SQ2800-102-50)

Rectangular long path cell holder for 4 cells up to 50mm pathlength.

SQ2800-102P-50

Peltier Unit (Cat No. SQ2800-107P)

Peltier unit for continuous temperature control from 15° to 40° C. The x-y adjustable mechanism is used to align cell with optical beam for micro cell setup. The temperature display resolution is 0.1° C. The unit consists of a controller and a thermoelectrically controlled cell holder and SQ panel.

SQ2800-107P

SQ2800-104P

Cylindrical Cell Holder (Cat No. SQ2800-104P)

Cylindrical cell holder kit for single cell up to 100mm pathlength (20mm dia.). Includes universal base and one holder.

SQ2800-108P

Ambient Sipper Unit (Cat No. SQ2800-108P)

Sipper system for single cell flow thru. The x-y adjustable mechanism is used to align cell with optical beam for micro cell flow cell setup. The sipper unit consists of a flow-thru controller with peristaltic pump and flow-thru front panel (flow cell and tubing not included).

Note: Requires flow cell and proper tubing to complete flow-thru setup.

SQ2800-121

8-Position Auto Cell Changer (Cat. No. SQ2800-121)

Eight-position automatic cell changer designed for SQ-2800/2802/3802 series spectrophotometers.

Peltier/Sipper System (Cat. No. SQ2800-109P)

Peltier/Sipper system for a single cell flow thru and continuous temperature control from 15° to 40° C. The x-y adjustable mechanism is used to align cell with optical beam for micro flow cell setup. The temperature display resolution is 0.1° C. The unit consists of a Peltier/Sipper controller with peristaltic pump and a thermoelectrically temperature controlled cell holder with panel. The unit can be used a flow thru only or temperature control only.

SQ2800-109P

Note: requires flow cell and proper tubing to complete flow thru setup.

6-position Auto Cell Changer (Cat. No. SQ4802-120)

Six-position automatic rotating cell changer designed for SQ-4802 series spectrophotometer.

SQ4802-120

SQ2800-122

Reflectance Measurement Attachment (5° incident angle) (Cat. No. SQ2800-122)

The technique of reflectance measurement is used for evaluation of materials relative to a reflectance surface. The minimum sample is (L) 30 x (W) 30 mm.

We inventory an extensive line of additional parts and accessories not shown here. If you do not see what you want or need, please contact us for more information.

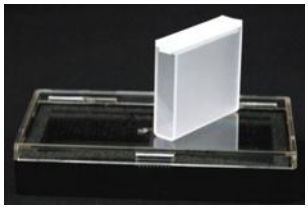
Cuvets and Glassware for UNICO Spectrophotometers

A large variety of cuvets are available including standard round, or square glass cells, quartz cells, long path cells, semi-micro and micro cells, short path cells, cylindrical cells and flow thru cells.


S90-305P


S90-310Q


S90-309-1Q


S90-311Q

Item #	Previous Item #	Materials	Shape	Pathlength	Interior Width	Height	Capacity	Wavelength Range	Qty per Pack
Regular or Macro Cuvets (10 mm pathlength)									
S-90-304-1G	2100-304-1G	Glass	Square	10 mm	10 mm	45 mm	3.5 ml	335 to 900 nm	1
S-90-304G	2100-304G	Glass	Square	10 mm	10 mm	45 mm	3.5 ml	335 to 900 nm	2
S-90-309-1Q	2100-309-1Q	Quartz	Square	10 mm	10 mm	45 mm	3.5 ml	200 to 1200 nm	1
S-90-309Q	2100-309Q	Quartz	Square	10 mm	10 mm	45 mm	3.5 ml	200 to 1200 nm	2
S-90-301	2100-301	Glass	Tube	10 mm	10 mm	100 mm	4.0 ml	335 to 1100 nm	12
S-90-302P-100	2100-302P	Polystyr.	Square	10 mm	10 mm	45 mm	3.5 ml	335 to 1100 nm	100
S-90-302P-500	2100-303P	Polystyr.	Square	10 mm	10 mm	45 mm	3.5 ml	335 to 1100 nm	500
S-90-305P	2100-305P	Polystyr.	Square	10 mm	4 mm	45 mm	1.5 ml	335 to 1100 nm	500
Non-10 mm Pathlength Cuvets									
S-90-308-50G	2100-308-50G	Glass	Cylindr.	50 mm	n/a	22 mm	14.1 ml	335 to 2500 nm	1
S-90-308-100G	2100-308-100G	Glass	Cylindr.	100 mm	n/a	22 mm	28.2 ml	335 to 2500 nm	1
S-90-310Q	2100-310Q	Quartz	Rectan.	5 mm	w/ stopper	48 mm	1.7 ml	170 nm-2500 nm	1
S-90-311Q	2100-311Q	Quartz	Rectan.	50 mm	w/ stopper	48 mm	17.5ml	170 nm-2500 nm	1
S-90-312Q	2100-312Q	Quartz	Rectan.	30 mm	w/ stopper	48 mm	10.5ml	170 nm-2500 nm	1
S-90-313Q	2100-313Q	Quartz	Rectan.	20 mm	w/ stopper	48 mm	7.0 ml	170 nm-2500 nm	1
S-90-314Q	2100-314Q	Quartz	Rectan.	100 mm	w/ stopper	48 mm	3.0 ml	170 nm-2500 nm	1
S-90-320G	2100-320G	Glass	Rectan.	20 mm	open top	45 mm	7.0 ml	335 to 2500 nm	1
S-90-321G	2100-321G	Glass	Rectan.	50 mm	open top	45 mm	17.5 ml	335 to 2500 nm	1
S-90-322G	2100-322G	Glass	Rectan.	100 mm	open top	45 mm	35.0 ml	335 to 2500 nm	1
S-90-330G	2100-330G	Glass	Rectan.	1 mm	10 mm	45 mm	0.35 ml	335 - 1000 nm	1
S-90-331Q	2100-331Q	Quartz	Rectan.	1 mm	10 mm	45 mm	0.35 ml	170 - 2500 nm	1
S-90-332G	2100-332G	Glass	Rectan.	2 mm	10 mm	45 mm	0.70 ml	335 - 2500 nm	1
S-90-333Q	2100-333Q	Quartz	Rectan.	2 mm	10 mm	45 mm	0.70 ml	170 - 2500 nm	1
S-90-335Q	2100-335Q	Quartz	Rectan.	3 mm	10 mm	45 mm	1 ml	170 - 2500 nm	1
Flowcell, Macro and Micro									
S-90-340FG	2100-340FG	Glass	Square	Frosted	10x7x40 mm	48 mm	3.0 ml	320 to 2500 nm	1
S-90-341FG	2100-341FG	Glass	Square	Frosted	10x4x40 mm	48 mm	1.8 ml	320 to 2500 nm	1
S-90-342FQ	2100-342FQ	Quartz	Square	Frosted	10x7x40 mm	48 mm	3.0 ml	170 to 2500 nm	1
S-90-343FQ	2100-343Q	Quartz	Square	Frosted	10x4x40 mm	48 mm	1.8 ml	170 to 2500 nm	1
S-90-344FG	2100-344FG	Glass	Square	Black	10x4x12 mm	48 mm	0.48 ml	320 to 2600 nm	1
S-90-345FG	2100-345FG	Glass	Square	Black	10x3 mm (dia.)	48 mm	0.07 ml	320 to 2500 nm	1
S-90-346FQ	2100-346FQ	Quartz	Square	Black	10x4x12 mm	48 mm	0.48 ml	170 to 2500 nm	1
S-90-347FQ	2100-347FQ	Quartz	Square	Black	10x3 mm (dia.)	48 mm	0.07 ml	170 to 2500 nm	1
Semi-Micro, Sub-Micro Cuvets									
S-90-350G	2100-350G	Glass	Lid	Black	10x4	45 mm	1.0 ml	320 to 2,600 nm	1
S-90-351Q	2100-351Q	Quartz	Lid	Black	10x4	45 mm	1.0 ml	170 to 2,600 nm	1
S-90-353G	2100-353G	Glass	Lid	Black	10x2	45 mm	0.5 ml	320 to 2,600 nm	1
S-90-354Q	2100-354Q	Quartz	Lid	Black	10x2	45 mm	0.5 ml	170 to 2,600 nm	1
S-90-356G	2100-356G	Glass	Lid	Black	10x1	45 mm	0.25 ml	320 to 2,600 nm	1
S-90-357Q	2100-357Q	Quartz	Lid	Black	10x1	45 mm	0.25 ml	170 to 2,600 nm	1
S-90-358Q	2100-358Q	Quartz	Stopper	Black	10x2 x 5 mm	45 mm	0.100 ml	170 to 2,600 nm	1
S-90-359Q	2100-359Q	Quartz	Stopper	Black	10x2 x2.5 mm	45 mm	0.050 ml	170 to 2,600 nm	1

Please see these and additional laboratory products from UNICO on our website at www.unicosci.com.

PowerSpin™ C822 Model HX Centrifuge

PowerSpin™ C8606 Model MX Horizontal Centrifuge

PowerSpin™ C8624 Model MX Centrifuge,

MTR22 Programmable Multi-Mixer

LVM 1000 Vortex Mixer

LTTR200 Rock-IT™ Tube Mixer

G388 Dual Binocular Head Infinity Optics Microscope

IP750 Infinity Microscope

ZM180 Zoom Stereomicroscope

Glove Box Dispenser

Tube-CUBE™ Tube Rack

Phlebotomy Tray

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