

Visible & UV/Vis Spectrophotometers



**Accurate
Precise
Affordable**

UNICO®

S2100 Series UV/Vis Spectrophotometers

The Unico S2100 Series Spectrophotometers are simple, flexible, easy-to-use and maximize value while providing performance you would expect for a 5nm bandpass instrument. The S2100 Series simplicity is reflected in its attractive price without sacrificing accuracy and precision. The value is evident from the performance provided every day, all year. The flat, low-profile design minimizes bench “dead space”, allowing room for cuvette racks, notebooks or a laptop computer. To simplify documentation, the S2100 Series spectrophotometers can be controlled from UNICO® Application Software for Windows® through the built-in RS-232C port. The standard software package expands the applications to include standard curve, Kinetics (Abs. vs Time) and the advanced software package further adds DNA/Protein analysis and Scanning capabilities. Test data can be exported into Microsoft Excel® for further analysis.



Easy-to-Use, Easy-to-Read Display

The two-line, LED display is large enough to read from any angle and distance, so there is no need to search or “squint”. For UV models (S2100UV and S2100SUV), a simple push of the button on the display panel allows you to turn on/off either lamp, extending the lifetime. Readily switch modes from Absorbance to % Transmittance, or enter a Concentration or Dilution Factor. No complicated menu to slow down technicians from completing other important tasks. The standard large, flexible sample compartment has a smooth 4-cell holder with 4 glass cuvettes and 2 quartz cuvettes (for UV models only) included. A wide variety of accessories are available.

Four models to choose from:

S2100	Visible Spectrophotometer
S2100S	Visible Scanning Spectrophotometer
S2100UV	UV/Vis Spectrophotometer
S2100SUV	UV/Vis Scanning Spectrophotometer

Specifications

Model	S2100 & S2100S (Visible)	S2100UV & S2100SUV (UV/Vis)
Wavelength Range	325nm – 1000nm	200nm – 1000nm
Bandwidth	5nm	5nm
Optical System	Single beam, grating system 1200 lines/mm	Single beam, grating system 1200 lines/mm
Wavelength Accuracy	±2nm	±2nm
Wavelength Repeatability	±1nm	±1nm
Wavelength Readability	1nm	1nm
Photometric Range	0-125%T, -0.1-2.5A, 0-1999 C (0-1999F)	0-125%T, -0.1-2.5A, 1-999C (0-1999F)
Photometric Accuracy	±0.004A @0.5A	±0.004A @0.5A
Stray Light	<0.3%T @ 340nm & 400nm	<0.3%T @ 220nm & 340nm
Stability	±0.002A/hr @500nm	±0.002A/hr @500nm
Standard Cell Holder	4-position 10mm cell changer	4-position 10mm cell changer
Sample Compartment	Accommodates 100mm pathlength cuvette with optional holder	
Display	Two-line, 9-digits	Two-line, 9-digits
Output	RS-232C	RS-232C
Software	Optional (S2100), Standard (S2100S)	Optional (S2100UV), Standard (S2100SUV)
Light Source	Tungsten Halogen Lamp	Tungsten Halogen/Deuterium Lamp
Power Requirements	115V/230V switchable	115V/230V switchable
Instrument Dimensions	470mm(W) x 400mm(D) x 140mm(H) 18.5”(W) x 15.7”(D) x 5.5”(H)	470mm(W) x 400mm(D) x 140mm(H) 18.5”(W) x 15.7”(D) x 5.5”(H)
Instrument Weight	12kg (26 lbs)	14.5kg (32 lbs)



Simple Solutions for your Spectrophotometry Needs

S2100 Series UV/Vis Spectrophotometer Application Software

Install 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.

Applications include:

1. Abs./ % T/Conc.
2. Standard Curve (Quantitative)
3. Kinetics (Abs. vs Time)
4. Scanning (with advanced software package #S2100-402)
5. DNA/Protein



Abs/%T/Conc

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

Quantitative (Standard Curve)

Use up to 8 standards to establish standard curve. Four methods for fitting a curve:

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

Wavelength Scanning (advanced software package #S2100-402)

1. Hi, Low scan speed selectable
2. Automatically record peaks and valleys
3. Re-scaling axes, curve

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.

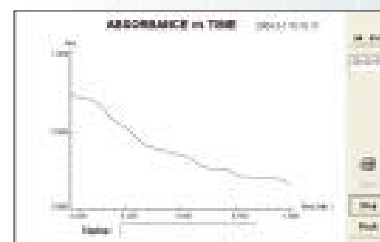
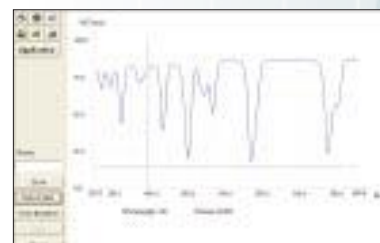
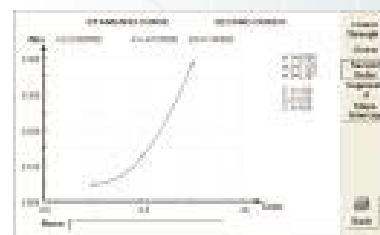
DNA/Protein

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

DNA Concentration = $62.9 \times A_{260} - 36.0 \times A_{280}$

Protein Concentration = $1552 \times A_{260} - 757.3 \times A_{280}$

Other wavelengths and factors may be entered.



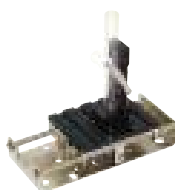
Application Software Ready to Go...

UNICO®

S2100 Series Accessories and Options

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.



Single Square Cell Holder (Item# S2100-103P)

Single square cell holder 10mm pathlength cuvette.



Water-Jacketed Cell Holder (Item# S2100-105P)

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



Peltier Unit (Item# S2100-107P)

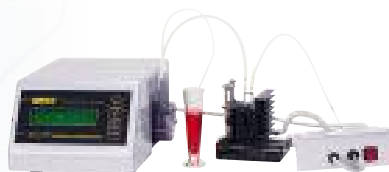
Peltier unit for continuous temperature control from 15 to 40° C. The x-y adjustable mechanism is used to align cell with optical beam for micro cell setup. The temperature display resolution is 0.1°C. The unit consists of a controller and a thermoelectrically controlled cell holder.



Peltier/Sipper System (Item# S2100-109P)

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 Peltier/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.



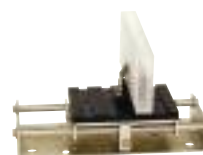
Cuvettes

A large variety of optical glass and quartz cuvettes available including standard square glass cells, quartz cells, long path cells, semi-micro and micro cells, short path cells, cylindrical cells, flow thru cells. See price list for individual item number listings.



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

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



Cylindrical Cell Holder (Item# S2100-104P)

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



Micro Cell Holder (Item# S2100-106P)

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.



Ambient Sipper Unit (Item# S2100-108P)

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.



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.



S1200 Series Visible Spectrophotometer



Specifications: S1200 Series

Wavelength Range	325nm – 1000nm
Bandwidth	5nm
Optical System	Single beam, grating system 1200lines/mm
Wavelength Accuracy	±2nm
Wavelength Repeatability	±1nm
Photometric Range	0-125%T, 0-2.0A, 1-999C (0-1999F)
Photometric Accuracy	±1%T
Stray Light	<0.5%T at 340nm & 400nm
Output	RS-232C
Sample Compartment	Accommodate 50mm pathlength cuvette with optional holder
Light Source	Tungsten Halogen Lamp
Power Requirements	115V/230V switchable
Instrument Dimensions	408mm x 308mm x 180mm 16" (W) x 12" (D) x 7" (H)
Instrument Weight	6.5kg (15 lbs)

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

The S1200 Series features optional Windows® based software for easy data collection and application expansion to standard curve and kinetics. Data can be easily exported to Microsoft Excel® for further processing and analysis.

A tool-free and alignment-free lamp change, large sample compartment packaged with a variety of optional accessories, makes the easy-to-use UNICO S1200 ideal for any standard spectrophotometer application, while staying within a conservative budget, CE approved.

Model S1200 comes standard with test tube holder and single square cuvette holder. The model S1201 is packed with 4-cell changer, standard.

Ordering Information

- S1200** Model S1200 Spectrophotometer – 5nm bandwidth, RS-232C port. Complete with 10mm single square cuvette holder, universal test tube holder, 10mm test tube (box of 12), a pair of optical glass cuvettes, dust cover, and operator's manual. Voltage preset at 110V.
- S1200E** Same as S1200 but voltage preset at 220V.
- S1201** Model S1201 Spectrophotometer – 5nm bandwidth, RS-232C port. Complete with 4-cell holder, a pair of optical glass cuvettes, dust cover, and operator's manual. Voltage preset at 110V.
- S1201E** Same as S1201 but voltage preset at 220V.
- S1200-401** Application WindowR-based software for PC. Programs include Standard Curve, Abs/%T/Conc., Abs. vs Time. Includes RS-232C serial cable (#S1200-226).
- S1100-101** Experimental/operators manual for UNICO 1100 and 1200 series. Experiments include Beer-Lambert, Absorption spectrum, Ksp of Pbl 2, Chlorophyll, Protein (Biuret test), and more. Includes teacher's guides, illustration, and answers to questions (160 pages)
- S1200-101** Universal test tube holder with base for 8 to 25mm diameter test tubes including COD.
- S1200-102** Single cell holder with base for 10mm square cuvettes.
- S1200-103** 4-position cell holder for 10mm square cuvettes.
- S1200-104** Longpath 4-position cell holder for up to 50mm rectangular cuvettes.
- S1200-105** Water-jacketed 10mm single cell holder with base and panel for temperature control applications (requires water bath).
- S1200-111** Black block for setting 0%T.
- S1200-505** Replacement Lamp.



Universal test tube holder
(Item# S1200-101)



10mm single cell holder
(Item# S1200-102)



4-position 10mm cell holder
(item# S1200-103)



Longpath cell holder
(Item# S1200-104)



Water-jacketed cell holder
(Item S1200-105)

The Reliable and Expandable Visible Spectrophotometer

UNICO®

S1100 Series Visible Spectrophotometers



S1100 Series is designed for use with ½" (13mm) round tubes or 10mm square cuvettes. Tube holders available for COD, 3/4" and 1" tubes. An adapter is supplied for 10mm square cuvettes.

High quality silicon photodiode detector and 1200 lines/mm grating assures high performance. Auto zero function, press-button blanking and built-in filters for easy operation. Large digital display for easy readout. A tool-free and alignment-free lamp change reduces the need for instrument service.

The Model S1100RS features optional Windows® based software for easy data collection and application expansion to Standard Curve and Kinetics. Data can be easily exported to Microsoft Excel® for further processing and analysis.

Model S1100 has Absorbance, Transmittance with Analog output. Model S1100RS has RS-232C output and additional Concentration and Factor modes.



S1100



S1100RS

Specifications

Model	S1100	S1100RS
Wavelength Range	335nm – 1000nm	335nm – 1000nm
Bandwidth	20nm	10nm
Optical System	Single beam, grating system 1200lines/mm	Single beam, grating system 1200lines/mm
Wavelength Accuracy	±2nm	±2nm
Wavelength Repeatability	±1nm	±1nm
Photometric Range	0-125%T, 0-2.0A	0-125%T, 0-2.0A, 1-999C (0-1999F)
Photometric Accuracy	±2%T	±1%T
Stray Light	<0.5%T at 340nm & 400nm	<0.5%T at 340nm & 400nm
Output	Analog Port	RS-232C Interface
Sample compartment	Accommodates 1 inch round tube with optional holder	
Light Source	Tungsten Halogen Lamp	Tungsten Halogen Lamp
Power Requirements	115V/230V switchable	115V/230V switchable
Instrument Dimensions	408mm x 308mm x 180mm 16" (W) x 12" (D) x 7" (H)	408mm x 308mm x 180mm 16" (W) x 12" (D) x 7" (H)
Instrument Weight	6kg (13 lbs)	6kg (13 lbs)

Ordering Information

S1100	Model S1100 Spectrophotometer – 20nm bandwidth, Analog output port. Complete with 10mm test tube holder, 10mm test tube (box of 12), square cuvette adapter, dust cover, and operator's manual. Voltage preset at 110V.
S1100E	Same as S1100 but voltage preset at 220V.
S1100RS	Model S1100RS Spectrophotometer – 10nm bandwidth, RS-232C port. Complete with 10mm test tube holder, 10mm test tube (box of 12), square cuvette adapter, dust cover, and operator's manual. Voltage preset at 110V.
S1100RSE	Same as S1100RS but voltage preset at 220V.
S1100-401	Application Windows®-based software for PC. Programs include Standard Curve, Abs/%T/Conc., Abs. vs Time. Includes RS-232C serial cable (#S1100-226) .
S1100-101	Experimental/operators manual for UNICO 1100 and 1200 series. Experiments include Beer-Lambert, Absorption spectrum, Ksp of PbI ₂ , Chlorophyll, Protein (Biuret test), and more. Includes teacher's guides, illustration, and answers to questions (160 pages).
S1100-102	Test tube holder for 13mm diameter (10mm pathlength) test tube (included with instrument).
S1100-103	Square cuvette adapter for 10mm square cuvettes (included with instrument).
S1100-113	Test tube holder for ¾ inch test tubes.
S1100-114	Test tube holder for 1 inch test tubes.
S1100-115	COD vial holder.
S1100-505	Replacement Tungsten Halogen Lamp.
S1100-521	Allen Wrench (for sample holder installation).



The Reliable and Simple Visible Spectrophotometers

The Easy-to-Use S1000 Spectrophotometer for Educational Labs



Model S1000 Spectrophotometer

Wavelength Range	400-1000 nm
Spectral Slit Width	20 nm
Optical System	Single beam, grating 1200 line/mm
Wavelength Accuracy	±3 nm
Wavelength Repeatability	± 1nm
Stray Light	<2% at 400 nm
Photometric Range	0-100%T, 0-1.99Abs
Photometric Accuracy	± 2%
Output	Analog
Light Source	Tungsten Halogen Lamp 6V/10W
Power Requirements	110V/220V Switchable
Instrument Dimensions	16"(W) x 12"(D) x 8"(H) 406mm x 305mm x 205mm
Instrument Weight	15 lbs (7kg)

Models S1000 Spectrophotometer

Precisely designed and ruggedly built, this easy-to-use spectrophotometer is ideal for student use in high schools and colleges. It is suitable for general analysis and experiments such as Beer-Lambert, Absorption Spectrum, Chlorophyll, protein (biuret test) and more.

The built-in secondary filters reduce stray light and increase precision. The student-proof positive safety stopper integrated with the wavelength dial prevents damage to the monochromator and grating. Large digital display makes reading much easier and analog interface allows customers to collect data or print easily with external analog device.

The spectrophotometer comes with ½ inch round tube holder, 10 mm square cuvette adapter, box of 12 round tubes, user's manual, and dust cover. It is set for 110 V, but is switchable to 220 V as well. It is fully packed and ready to use.

Cells

Type	Optical Pathlength (mm)	Interior width (mm)	Window Height (mm)	Height (mm)	Capacity (mL)	Quantity per package	Glass Cell	Quartz Cell	Polystyrene. Cell
Round Tube	10	10	100	100	4	12	S-90-301	-	-
Square	10	10	42	45	3.5	100	-	-	S-90-302P
									-100
Square	10	10	42	45	3.5	1	S-90-304-1G	S-90-309-1Q	
Square	10	4	42	45	1.0	100	-	-	S-90-305P
Square, lid	10	4	42	45	1.0	1	S-90-350G	S-90-351Q	-
Square	10	2	5	45	0.1	1	-	S-90-358Q	-
Square	10	2	2.5	45	0.05	1	-	S-90-359Q	-
Rectangular	1	10	42	45	0.35	1	S-90-330G	S-90-331Q	-
Rectangular	5	10	42	48	1.7	1	-	S-90-310Q	-
Rectangular	20	10	42	48	7	1	S-90-325G	S-90-313Q	-
Rectangular	30	10	42	48	10.5	1	S-90-312G	S-90-312Q	-
Rectangular	50	10	42	48	17.5	1	S-90-321G	S-90-311Q	-
Rectangular	100	10	42	48	35	1	S-90-327G	S-90-314Q	-
Cylindrical	50	Ø22	22	-	14	1	S-90-308-50G	-	-
Cylindrical	100	Ø22	22	-	28	1	S-90-308-100G	-	-
Flowcell	10	7	40	48	3	1	S-90-340FG	S-90-342FQ	-
Flowcell	10	4	12	48	0.48 (chamber)	1	S-90-344FG	S-90-346FQ	-
Flowcell	10	Ø3	-	-	0.07 (chamber)	1	S-90-345FG	S-90-347FQ	-

Cells Round Tube Square Rectangular Cylindrical Microcell Flowcell

UNICO®



UV-4802



UV-3802



UV-2802



UV-2800

UNICO®

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