

SR9910 spectroradiometer with 1.8m quartz light guide and cosine diffuser input accessory. The graph shows the spectral output from a xenon lamp. Colour rendering of plotted graph - for show purposes only.

SPECTRORADIOMETERS

The SR9000-V7 range of computer controlled spectroradiometers are designed for the measurement of spectral radiance and irradiance in the ultra-violet, visible and near infra-red spectrum.

Using flexible fibre light guides and a range of accessories many optical measurements are made possible.

Specialised software provides user friendly control of the instrument with facilities for data storage, mathematical analysis and graphing.

Each spectroradiometer is fitted with a Macam high precision single or double grating monochromator. A choice of factory set bandwidths ensures the optimum resolution & sensitivity.

Both the SR9910 & SR9010 systems use high sensitivity cooled photomultiplier detectors, whilst the SR9020 & SR9030 spectroradiometers have silicon photodiode detectors. Macam also manufacture to order, systems with both photomultiplier and silicon detectors or other detectors including germanium and InGaAs.

All spectroradiometers are controlled with a PC compatible computer through the RS232 communication port. The spectroradiometer can also be connected to laptop computers for field use, without additional PC interface cards.

The spectroradiometers can be supplied housed in a laboratory enclosure or with a robust environmental enclosure, option (SR908).

All spectroradiometers operate from an external DC supply, this can be either a car or boat battery for field use or the 12V switch mode power supply included with the spectroradiometer. A rechargeable battery is fitted within the environmental enclosure, SR908.

Instruments

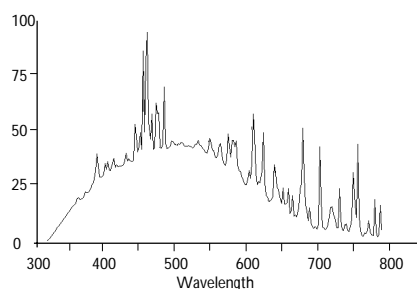
SR9910 Specially designed for ultra-violet and visible measurements, the SR9910 spectroradiometer includes a Macam double grating monochromator for excellent stray light rejection, and a thermoelectrically cooled multi-alkali photomultiplier detector. Optional accessories include an external monitor, 4π input diffuser, radiance telescope and reflectance/transmittance integrating spheres.

SR9010 The SR9010 spectroradiometer has all the features of the SR9910 except that it is built with a Macam single monochromator. This provides excellent value for where stray light is less significant.

SR9020 By replacing the cooled photomultiplier detector with a silicon photodiode the SR9020 offers the lowest cost computer controlled spectroradiometer in the SR9000 series.

SR9030 Using an 800 grooves/mm grating within its monochromator the spectral range of the SR9030 covers the visible to near infra-red spectrum.

Spectral Distribution XENON LAMP



Normalised spectrum of xenon lamp.

Software Features

Scanning:	Start & stop wavelengths. Step size (minimum 0.25nm). Adjustable integration times. Automatic timed scanning. Standard & fast scanning
Graphing:	Auto scaling both axis. Linear or log axis. Single or multiple graphs. Zoom wavelength feature. Radiometric, photometric, quantum & 3 user programmable integrals.
Real Time:	Single wavelength logging vs time.
Analysis:	Average up to five scans. Subtract two scans. Divide one scan by another. Normalise data by wavelength or by peak intensity. Calculate chromaticity co-ordinates.
Files:	Automatic storage of all spectral scans with time as file name. Renaming files after scanning. Data file management.
Default:	User programmable options for one touch scanning & graphing.
Calibration:	Calibration of spectroradiometer with accessories using Macam calibration sources traceable to NPL.
Spreadsheet:	Data files can be imported into a spreadsheet.

Accessories & Options

SR902	Irradiance QTH calibration source,
SR903	Irradiance deuterium and QTH calibration sources.
SR904	Spectral radiance telescope accessory.
SR908	Rugged environmental case option.
SR920	Isotopic diffuser input accessory.
SD222	External monitor.
SR924	Transmittance/reflectance sphere system.

Various lengths of quartz fibre & glass fibre flexible light guides from 1 metre to 25 metres long.

Light input accessories including side-viewing & inline cosine diffusers, integrating spheres and field of view probes.



Telescope, integrating sphere and cosine light guide input accessories

SPECIFICATION

Spectroradiometer Model	SR9910	SR9010	SR9020	SR9030
<i>Monochromators</i>	double	single	single	single
Spectral range:	200 - 800nm	200 - 800nm	300 - 800nm	300 - 1050nm
with cosine diffuser fitted	240 - 800nm	240 - 800nm	380 - 800nm	380 - 1050nm
Bandwidth (options):	2nm (1nm)	4nm (2nm)	8nm (4nm)	12nm (6nm)
Wavelength resolution:	0.25nm	0.25nm	0.25nm	1nm
Wavelength accuracy:	±0.5nm	±0.5nm	±0.5nm	±1.5nm
Straylight:	2x10 ⁻⁹	10 ⁻⁵	10 ⁻⁵	10 ⁻⁵
Focal Length:	100 mm	100 mm	100 mm	100 mm
Filter Wheel:	4 position	4 position	4 position	4 position
<i>Detectors:</i>	PMT- S20 TEC cooled	PMT-S20 TEC cooled	Si Photodiode	Si Photodiode

Sensitivity: The sensitivity of the spectroradiometer depends on the light guide and optical accessories used.
Contact Macam for further details.

Spectroradiometers are supplied with a 1 metre quartz fibre* flexible light guide fitted with a cosine diffuser assembly, full operating software and cables.

*SR9030 has glass fibre light guide.

Minimum hardware requirements: IBM PC compatible computer with a 80486 processor, 4Mb RAM, 2Mb byte hard disk space, VGA monitor and a serial RS232 port.

Data Sheet 133/1099

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