ILT960
Portable compact broad band spectroradiometer

ILT 960 with input optic accessories

The ILT960 is a compact broad band mini spectrometer used to measure both the lights amplitude and wavelength and provide calibrated spectral irradiance, radiance or power measurements. The ILT960 kits are combined with high end optics for proper light collection including diffusers for cosine correction, integrating spheres for total flux and radiance barrels for a narrow FOV.

ILT960 comes in three versions: **ILT960-UV, ILT960-VIS and ILT960-BB**. All ILT960 spectrometers include both wavelength and optical NIST traceable - ISO17025 accredited calibrations with certification and data files. Complimentary SpectrILight III software is included at no cost and DLL's are available upon request.

SpectrILight III software

SpectrILight™ III is a LabView™ based software package for Windows that allows you to acquire spectral and color data. Analysis of the data is now calculated instantly within the same program - no exporting required!

SpectrILight™ III includes calculations for metamerism, and 2 and 10 degree observer. The overlay feature allows the user to compare the base reading to current readings. Wavelength range, integration time, scan average and other controls can be easily set through pop up windows, menus and tool bars. Absolute Irradiance and chromaticity are calculated instantly.

Features

- Compact, portable design
- 180 – 1100 nm sensitivity range (200 – 1050 nm calibrated range, see page 2)
- VIS-NIR, UV, and full range UV-NIR calibrations available
- Extensive software package included
- Calculates both Radiometric and Photometric values
- Broad light level range is adjustable
- Linear and repeatable measurements

Options

All systems come standard with SpectrILight III software, 1 meter long fiber, input optic, tripod, hard storage case, and calibration.

Ordering information (others on request)	
ILT-ILT960UV 180 – 500 nm sensitivity range (200-1050 nm calibrated range, see page 2)	
ILT960UV-RAA4	Right angle optic with 11 mm aperture, irradiance/illuminance cal 250-500 nm
ILT960UV-INS50	includes 2" integrating sphere with 7 mm port, 1 m fiber, flux/power cal from 200-400 nm
ILT950UV-W	includes W/A2 parallel 1" area diffuser and fiber adapter
ILT-ILT960VIS 180 – 850 nm sensitivity range (230-1050 nm calibrated range, see page 2)	
ILT960VIS-RAA4	Right angle optic with 11 mm aperture, irradiance/illuminance cal.
ILT960VIS-INS50	includes 2" integrating sphere with 7 mm port, 1 m fiber, flux/power cal.
ILT960VIS-R2	Radiance barrel with 2 deg FOV, radiance/luminance cal.
ILT960VIS-W	Diffuser 1" surface area, 1 m fiber, irradiance/luminance cal.
ILT-ILT960BB 180 – 1100 nm sensitivity range (230-1050 nm calibrated range, see page 2)	
ILT960BB-RAA4	Right angle optic with 11 mm aperture, irradiance/illuminance cal.
ILT960BB-INS50	2" sphere with 7 mm port, 1 m fiber, flux/power cal.
ILT960BB-INS125	5" sphere with 3 ports (20 & 40 mm Ø), 1 m, fiber and flux/power cal.
ILT960BB-W	Diffuser 1" surface area, 1 m fiber, irradiance/luminance cal.

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Portable compact broad band spectroradiometer

Specifications			
Model	**ILT960-UV**	**ILT960-VIS**	**ILT960-BB**
Detector	CMOS Linear Sensor	CMOS Linear Sensor	CMOS Linear Sensor
Focal length	60 mm	60 mm	60 mm
Wavelength range	180 - 500 nm	180 - 850 nm	180 - 1100 nm
Slit	50 µm	25 µm	25 µm
Resolution	≤ 0.9 nm	≤ 1.2 nm	≤ 2.3 nm
Optical design	Symmetrical Czerny-Turner	Symmetrical Czerny-Turner	Symmetrical Czerny-Turner
SNR	330:01:00	330:01:00	330:01:00
Dynamic range	3450	3450	3450
Integration time	0.02 ms – 1 min	0.02 ms – 1 min	0.02 ms – 1 min
Stray light	<0.2%	<0.2%	<0.2%
Wavelength accuracy	± 0.21 nm	± 0.3 nm	± 0.6 nm
Dynamic dark correction	Yes	Yes	Yes
Non-linearity calibration	Yes	Yes	Yes
Wavelength calibration	Yes	Yes	Yes
Trigger compatible	Yes	Yes	Yes
Synchronization compatible	Yes	Yes	Yes
ADC	16 bits, 2.5 MHz	16 bits, 2.5 MHz	16 bits, 2.5 MHz
Operating temperature	0–50 °C	0–50 °C	0–50 °C
Interface	USB 2.0 UART	USB 2.0 UART	USB 2.0 UART
Calibration	NIST Traceable/ ISO17025 Accredited	NIST Traceable/ ISO17025 Accredited	NIST Traceable/ ISO17025 Accredited
Dimensions (mm) HxWxL	35.4 x 86 x 110	35.4 x 86 x 110	35.4 x 86 x 110
Power	300 mA@5VDC (supply voltage 4.75-5.25)	300 mA@5VDC (supply voltage 4.75-5.25)	300 mA@5VDC (supply voltage 4.75-5.25)
Calibrated ranges with different input optics			
RAA4	200-500 Dual source	200-850 Dual source	230-1050 Dual source
W/A2 (+MPS2354P2Xd)	200-500 Dual source	250-850 Dual source	250-1050 Dual source
R2	N/A	380-850 Single source QTH	380-1050 Single source QTH
R3	N/A	380-850 Single source QTH	380-1050 Single source QTH
INS50	200-400 Dual source D2	380-850 3 Dual source	350-1050 Dual source
INS125 + P6/SMAW	N/A	N/A	350-1050 Single source QTH
W5 E	250-500 Dual source	250-850 Dual Ssource	350-1050 Single source QTH

Optical calibration uncertainties for the ILT960	
Dual source calibration with Deuterium & Quartz Tungsten halogen lamp	200-250 ±15%
	250-450 ±10%
	450-950 ±5%
	950-1050±10%

Single source calibration with Deuterium lamp	200-250 +/-15%**
	250- 400±10%
Single source calibration with Quartz Tungsten halogen lamp	350-450 ±10%
	450-950 ±5%
	950-1050±10%

**Not all configurations can be calibrated down to 200 nm due to low sensitivity of the spectrometer with reduced throughput of input optics

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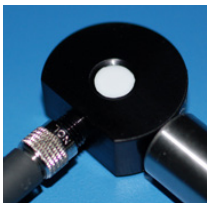
Optional input optics (others on request)

ILT-R2 Radiance optic
Specialized fiber optic produces an average field of view of 2 degrees for radiance/luminance measurement of extended sources. Requires ILT-VS950R calibration.

ILT-R3 Radiance optic
Small spot, fixed (500 mm) distance radiance/luminance lens

ILT-RAA4 Right angle cosine adapter with approx. 6.9 mm diameter aperture, permits measurement of light sources 90° to the standard fiber. Sold with weighted screw-on handle for more stable detector placement when needed. Excellent cosine response, increases signal transmitted to CCD spectrometer, excellent for lower light, low profile, and small diameter light pattern measurements. Calibration required (sold separately).



ILT-RAA5 Mini right angle adapter/ diffuser (6.4 mm dia. free aperture)
L x B x H: 21,6 x 11,7 x 11,9 mm
(Risk for heat damage do not exceed 300 °C)

ILT-W5E Miniature cosine correcting diffuser
6.35 mm free aperture and 10,9 mm length.
Threads directly on to SMA905 fiber

ITL-INS50 2-inch Integrating sphere with 2 ports; SMA905 and 5 mm port with lambertian response. For testing mounted and unmounted LEDs, fiber optics and miniature lamps. Provides readout of total flux in watts and lumens, irradiance in W/cm², illuminance in lux, color purity, spectral distribution and color temperature with ILT550
(requires ILT-VS950P calibration).
Alternative: ILT-INS125 5-Inch Integrating sphere and ILT-INS250N 10-inch Integrating sphere.

ILT-INS125 Integrating sphere
12,7 cm, three port - two 20 mm & one 40 mm dia.

ILT-INS250N Integrating sphere
25,4 cm, three port - two 20 mm, one 40 mm dia. Includes built-in calibrated lamp.

ILT-FFOSMA2UV1000
2 meter long, 1000 micron, armored fiber optic light guide. Transmits light from 250 -1050 nm. Strong armored cable adds additional protection against breakage often required for longer fiber lengths.

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