

# Guru Spectroscopy Kit



Thunder Optics

— Science and knowledge for all —



**\$650 - Guru Spectroscopy Kit**



With online classes rising in popularity, teachers are struggling to deliver instruction to students outside a lab environment, which is defiantly valuable to say the least. This is where the portable Guru Spectroscopy Kit proves invaluable.

Designed specifically for teaching convenience, the Guru Spectroscopy Kit allows both teachers and students to acquire spectra and measure intensity, absorbance, transmittance as well as fluorescence.

Students can take this amazing experimental set with them and conduct their own experiments as they follow your educational program from the safety of their homes.



**Teachers have their work cut out for them already.** The Guru Spectroscopy Kit makes their lives easier with prepared worksheets that are designed for efficient student progress. The worksheets are available to compliment high school programs which includes fundamental physics and chemistry.



*All-In-One Spectroscopy Kit – high quality instruments and readymade learning materials for online and offline classes.*

- Identification of elements present in the Sun's and Earth's atmospheres –Astrophysics.
- Emission Spectrometry - Elemental identification.
- Absorption Spectroscopy - Beer's Law.
- Absorption Spectroscopy - Plant Pigment identification.







## BENEFITS

- Readymade Worksheets with instructions and graphics to conduct experiments.
- Pre-calibrated spectrometer is ready for spectroscopy classes.
- Real spectroscopy system that so easy to mount and steady to damages.
- A zip case for storge and transportation. Free research grade software (for non-commercial use only).

## DELIVERY PACK

**All-in-one Kit comes with everything a student needs to conduct experiments even at home.**

This includes:

- A set of 3 cuvettes.
- A upgraded cuvette holder with a cover.
- Optical fibers 0.5 m long – 2 items.
- Mini Light source.
- SMA-E Spectrometer can be connected via a USB cable which allows users to control specrometer settings and examine spectra.
- A storage case.

## FEATURES

- Wavelength range over 480nm with a resolution of less than 1.5nm at 550nm.
- USB 2.0.
- 100  $\mu\text{m}$  slit and 1000 l/mm grating.
- All parts have SMA connectors.
- Each item of the kit can be used separately for a range of experimental needs.
- All instruments (spectrometer, light source and cuvette holder) made with black anodized aluminium.
- Option of US or EU plug.

*All of these fragile items are packed in a convenient modern zip case which can be stored and carried around safely to and from home and from school. The internal soft parts in the bag can be taken apart for optimal use which makes it ideal to store additional spectroscopical instruments.*



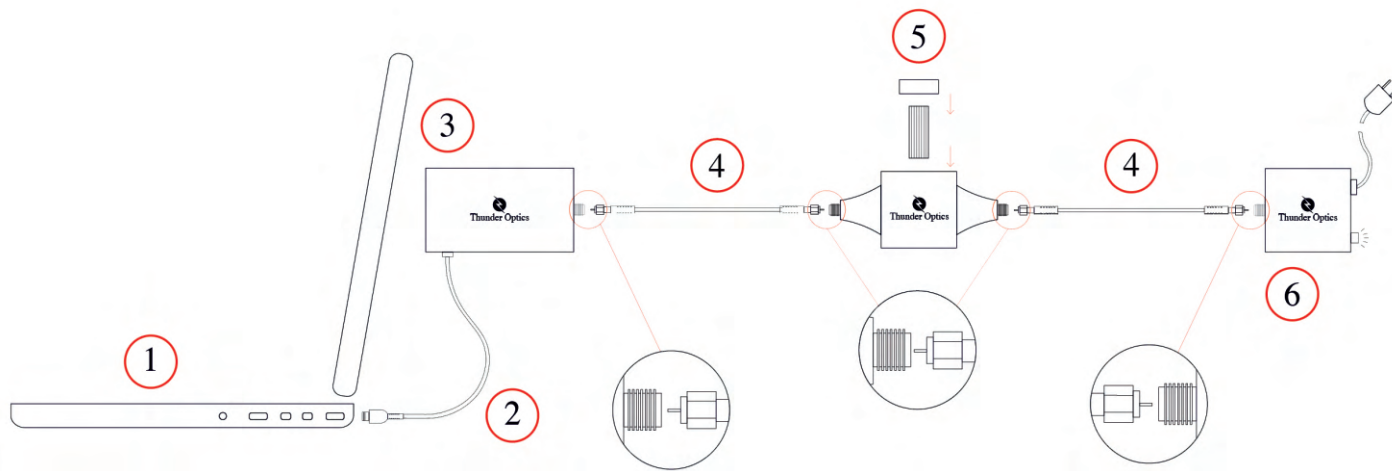
## SOFTWARE

### **Spectragryph control spectrometry software**

The software allows students to control the spectrometer for data acquisition. This includes their ability to acquire emission spectra and determine optimal wavelengths for kinetic experiments.

## APPLICATIONS

- Analyze emitted light from any light source (Vis-NIR).
- Absorbance and Transmittance.
- Fluorescence (required LED or lasers that are not included).
- Measure Absorbance and Densities.



- 1 Computer
- 2 USB cable
- 3 SMA-E Spectrometer

- 4 Optical fibers for excitation and collection
- 5 Cuvette Holder
- 6 Light Source

### SMA-E Spectrometer

Weight	290 g
Dimensions	111 × 38 × 15 cm
Wavelength range (nm)	350-920
Detector type	RGB
Ship Type	CMOS
Chip Dim (pixels)	1800×1200
Chip Dim (")	1/3
Diffraction Grating (lines/mm)	1000
Slit Width (μm)	100
Optical Connector	SMA 905
Power Supply	USB 2.0
Resolution (nm)	< 3
Software	Spectragryph
OS	Windows
Sensitivity counts/μW per ms	1300 mV/lux-sec
Pixels	1800
AD converter	8bit
Integration time	50.0ms – 0.5s
Temperature range (°C)	0-55
Detector	CMOS

### Mini Light Source

Weight	135 g
Dimensions	6 × 8.1 × 3.4 cm
Lamp	Tungsten
Wavelength range (nm)	380-2000
Input Voltage (V)	14V DC
Application	Absorption, Calibration, Reflectance, Transmittance
Optical Connector	SMA 905

### Cuvette Holder

Weight	300 g
Dimensions	4 × 4 × 5 cm
Preinstalled lens	Yes
Number of ports	03

### Optical Fibers

Patch Cord SMA905
Wavelength 100μm
0.5 m long

### \*WARNING

Never look into the Mini Light Source directly because it can cause severe eye injury. Do NOT open the unit under any circumstance. It does NOT contain any user-serviceable parts inside, and there are dangerous voltages present.

### ABSORPTION SPECTRUM OF EXTRA VIRGIN OLIVE OIL

