

## SPECTROSCOPES AND SPECTRAL MEASURING INSTRUMENTS

1501 | 1504 | 1701 | 1836





1701

**Spectroscope 1701**

The 1701 Spectroscope is a Kirchhoff-Bunsen Spectroscope, used for qualitative analysis and measurement of emission and absorption spectra. It can be calibrated easily, and both the observation tube and ocular is moveable.

**Specifications**

- Observation tube moveable, with lock-screw
- Slit tube fixed with variable slit objective
- Scale tube fixed scale of 200 divisions  
can be calibrated in wavelengths
- Ocular 18 mm / 90 mm
- Objective 18 mm / 180 mm
- Flint prism 60°, dispersion C–F = 2°,  
base length 20 mm, height 30 mm

**Accessories**

- 1714 scale illumination for memory  
and wavelength scale
- 1717 wavelength scale
- 1718 spare prism
- GL1 spare lamp 12 V / 1 W

**Handheld spectroscopes 1501 and 1504**

The handheld spectroscopes 1501 and 1504 are portable precision spectroscopes. They meet most laboratory applications. They are ideal instruments for applications within schools and universities and for qualitative analysis and measurement of emission and absorption spectra, e.g. for checking the line spectrum of gas discharge lamps as well as individual and comparative observations and spectral examinations.

**Specifications**

- 1501**
- Slit variable
  - Angle dispersion C–F 7°
  - Linear dispersion 60 mm  
(direct vision prism of Amici type)
- 1504**
- Slit variable
  - Angle dispersion C–F 7°
  - Linear dispersion 60 mm
  - Wavelength scale 400–750 nm  
(direct vision prism of Amici type)

**Accessories**

- 1510 Stand
- 15081 Scale illumination
- GL1 Spare lamp 12 V / 1 W



1501



1504

**Spectrometer-Goniometer 1836**

KRÜSS offers the model 1836 Spectrometer-Goniometer, for the exact measurement of optical data on prisms. It can also be used as a spectroscope, for qualitative examination and measurement of emission and absorption spectra.

**Specifications**

- Observation tube infinitely variable
- Ocular crosshairs
- Scale reading precision 1 angle min.
- Objective field number 18  
160 mm focal distance
- Prism Flint glass (60°)
- Dispersion angle C–F = 2°
- slit tube symmetric precision slit  
of hardened steel

**Accessories**

- 1860 prism holder
- 1861 grill retainer for Rowland type grating
- 1862 Rowland type grating 590 lines / mm
- 1863 Rowland type grating 600 lines / mm
- 1865 spare prism
- 1866 crosshair's ocular
- 1874 scale illumination with transformer  
100–240 V
- 1875 scale illumination without transformer
- GL1 spare lamp 12 V / 1 W



1836

**How does a spectrometer work?**

The spectrometer remains one of the easiest to understand, and yet among the most powerful of all scientific instruments. Its development has played a large part in the development of science itself. The basic laboratory spectrometer has changed little in its configuration since the early 19th century, and yet it remains indispensable for education as well as practical research.

The incoming or incident light ray is collimated – made into a parallel beam – either by passing through a narrow slit or by use of a collimating lens. It is then diffracted, using a prism or a diffraction grating, and the resulting spectrum can be observed. By careful measurement of the position of the receiving optics, an accurate measure of wavelength can be made and, using the considerable spectral knowledge that has been collected over two centuries, identification of materials can be made.

Elements have unique spectra, which can be thought of as their fingerprints, generating bands of specific colour in the receiving optics. Perhaps the best-known of these is sodium, which generates a distinctive pair of closely-spaced spectral lines at a wavelength of about 589 nanometres. These lines are just 0.6 nanometres apart, and their resolution as a pair of lines – rather than a single line – is an age-old test of the optical quality of a simple spectrometer.