MEASURING QUALITY. SINCE 1796

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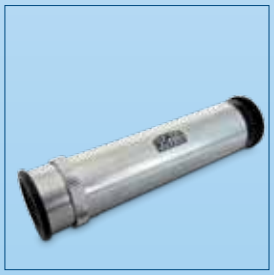
Spectroscopes and Spectral Measuring Instruments

1501 | 1504 | 1701 | 1836



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Spectroscopes

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.

1836

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

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 indispensible 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.

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