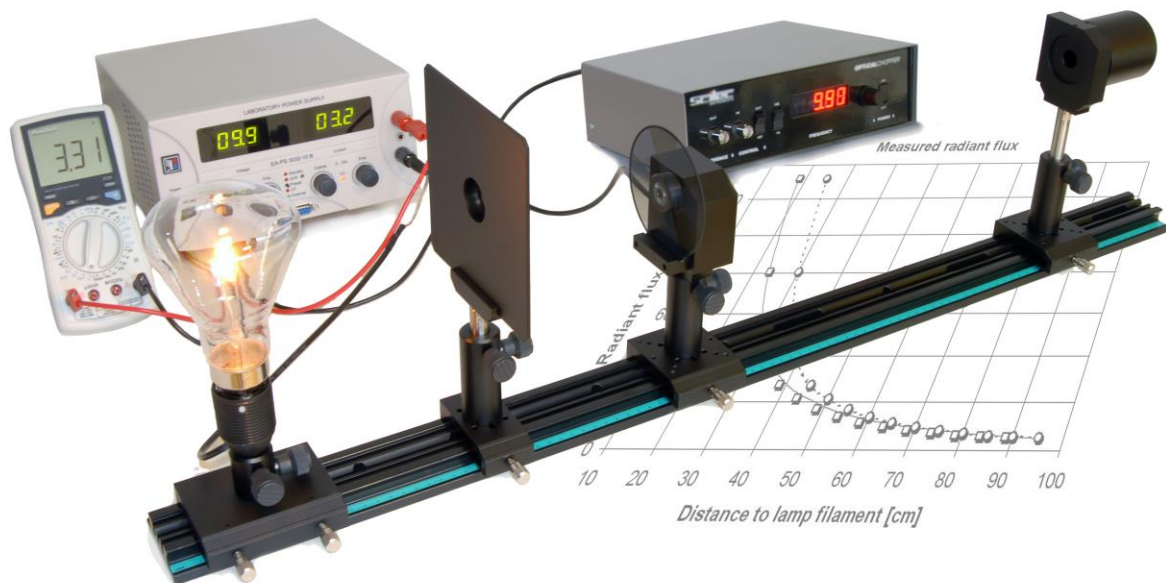


Radio- and Photometry (CA-1120)



Watts or watt seconds are well known units of measurement of optical radiation. However, the visible part of this radiation has its own measure, the candela (cd), within the seven international SI base units meter (m), kilogram (kg), second (s), ampere (A), kelvin (K) and mole (mole) which have been defined by the International Conference for Weights and Measures (CIPM) and standardized world-wide by calibration.

The standards for illumination are needed in development and calculation of lighting systems in industry. In optical science the whole spectral range of radiation is of interest, but illumination engineering or photometry only the range of the visible wave-length of the human eye is important. To give developers, engineers and scientists a common measure for sensitivity of the human eye the International Commission for Lighting has defined a statistical range of spectral response based on an investigation of a selected number of people. In Photometry all measurements are based on this sensitivity of the human eye.

With the help of this educational kit the students learn the basics of light. Calibration of an incandescent lamp and black body radiation is discussed. With the light chopping technique the emission of the lamp can be distinguished from the ambient light falling on the thermopile detector. All experiments are explained in a detailed description.

Alternatively to the scientific lamp the kit can be ordered with a halogen lamp (CA-1121).

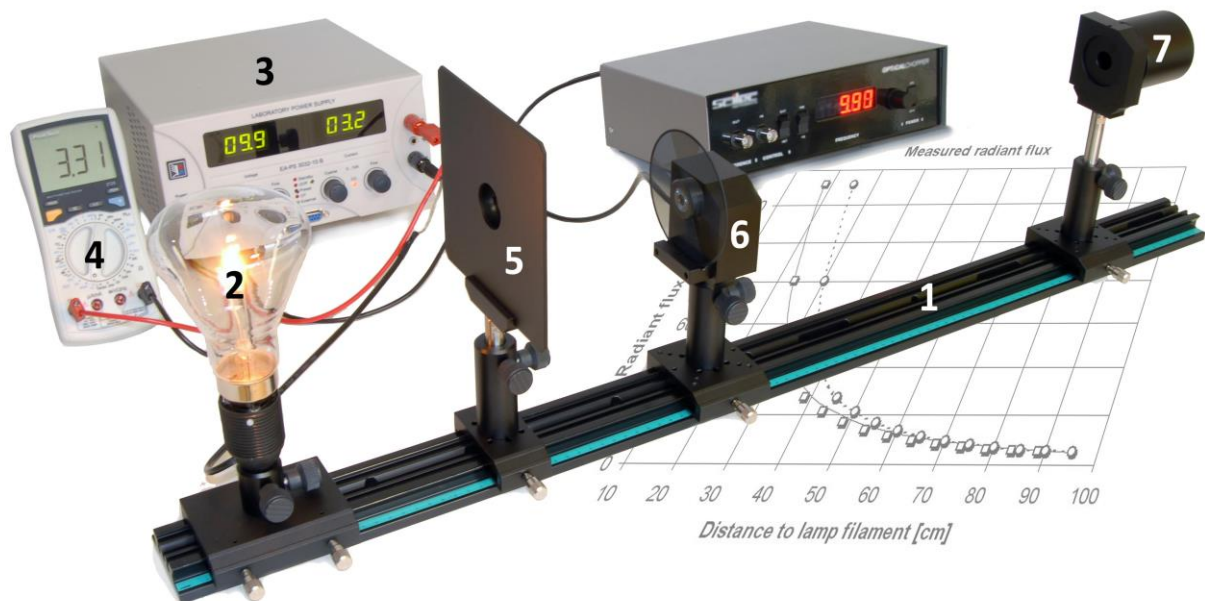
Educational Objectives of Investigation

- Types of Laser Diodes
- Beam Profile
- Fast and Slow Axis
- Spectral Properties
- Laser Threshold
- Slope Efficiency
- Beam Shaping
- Polarization State

Ordering Information

For ordering the Radio- and Photometry experimental kit (CA-1120)
use ordering number: 490091120

Setup and Components



- 1 Flat Rail 1000 mm with scale
- 2 Incandescent lamp
- 3 Power Supply for standard lamp
- 4 3 ½ Digit Voltmeter
- 5 Screen with adjustable iris diaphragm
- 6 Light chopper with control electronics
- 7 Broad band photo detector
- 8 Two-channel oscilloscope (not shown)
- 9 Set of interconnection cables (not shown)
- 10 User manual (not shown)

Measurements and Handling

- Basics of light
- Calibration of standard lamp
- Photometric units and their conversion
- Measurement of the $1/r^2$ relation