



Fabry-Perot interferometer

09050.02

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Fig. 1: Fabry-Perot interferometer 09050.02.

Operating instructions

1 SAFETY PRECAUTIONS



- Carefully read these operating instructions before operating this instrument. This is necessary to avoid damage to it, as well as for user-safety.
- Do not start up this instrument in case of visible signs of damage to it.
- Only use the instrument for the purpose for which it was designed.

2 PURPOSE AND CHARACTERISTICS

This high resolution interferometer serves, in combination with the PHYWE cadmium lamp (09050.20), for the observation and measurement of the normal and the anomalous Zeeman effect. The Fabry-Perot etalon is adjusted to two different Cd-lines and provides very intense interference rings that can be observed and measured using optical devices. When magnetic systems with axially bored pole pieces are used, the longitudinal and the transverse Zeeman effects can both be observed.

3 FUNCTIONAL AND OPERATING ELEMENTS

The Fabry-Perot etalon consists of a completely flat quartz glass plate that is partially transparent mirrored on both sides. Multiple reflections within the plate lead to interferences. The distance between the mirrored surfaces is exactly 3 mm. A converging lens is firmly mounted in the tube for intense illumination of the etalon. The tube features a slot where a red filter can be inserted between the etalon and the converging lens.

The 508 nm interference filter that is supplied can be mounted by a lens holder of type 08012.00. The interferometer is held by the metal rod that can be screwed in the tube from the side

4 TECHNICAL SPECIFICATIONS

Plate diameter	35 mm
Plate thickness	3 mm
Refraction index	$n = 1.45$
Planeness	$\lambda/10$
Parallelism	0.4 "
Reflection	90%
Transmission	10% (at $\lambda = 644$ nm and at $\lambda = 508$ nm)
Resolution	$\lambda/\Delta\lambda = 400000$
Convex lens	$f = 100$ mm
Dimensions of the tube	$l = 115$ mm; $d = 55$ mm
Distance between the end of the stem and the optical axis	150 mm

5 LITERATURE REFERENCE

Handbook Laboratory Experiments Physics Experiment	16502.32 P2511001
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6 LIST OF EQUIPMENT

Main components for the Zeeman effect

Fabry-Perot interferometer	09050.02
Cadmium lamp for Zeeman effect	09050.20
Power supply for spectral lamps	13662.9X*

Magnetic systems

Electromagnet without pole pieces	06480.01
Pole pieces, drilled, conical	06480.03
Rotating table for heavy loads	02077.00

or

Magnetic system, adjustable	06327.00
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* Voltage and frequency (see type plate) depending on local power grid.

xxxxx.91 = 115 V/60 Hz

xxxxx.92 = 115 V/50 Hz

xxxxx.94 = 230 V/60 Hz

xxxxx.97 = 230 V/50 Hz

Special voltages and fixed frequencies on request.

7 NOTES ON THE GUARANTEE

We guarantee the instrument supplied by us for a period of 24 months within the EU, or for 12 months outside of the EU. This guarantee does not cover natural wear nor damage resulting from improper handling.

The manufacturer can only be held responsible for the function and technical safety characteristics of the instrument, when maintenance, repairs and changes to the instrument are only carried out by the manufacturer or by personnel who have been explicitly authorized by him to do so.

8 WASTE DISPOSAL

The packaging consists predominately of environmental compatible materials that can be passed on for disposal by the local recycling service.

Please contact your municipal administration for information on the disposal of instruments.