

BIOSUPLAR 6

Surface Plasmon Resonance Spectrometer

Specifications

Analytical μ -Systems / Mivitec GmbH

Surface Plasmon Resonance Spectrometer S.P.R

Specifications

model : **BIOSUPLAR 6**

Product summary

The core of the device is a measurement prism with a corner reflector. The prism is mounted on the rotating drive. The right (in the drawing) face of the prism is covered with the reflecting coating. The angle between the working (top) and the right faces of the prism is 90° .

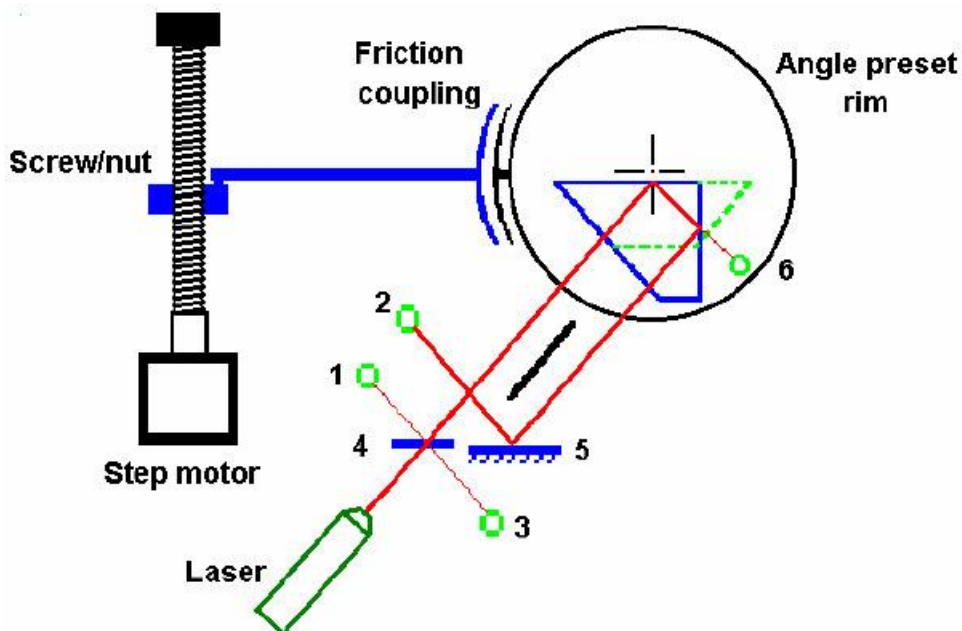
The sensor chip (the glass slide 1 – 1.2 mm thick with the plasmon-supporting Au or Ag coating) is placed upon the working surface of the prism, the coating up. Before placing the sensor chip, apply a droplet of the immersion liquid to the working face of the prism. Make sure that after placing the chip no air bubbles left between its bottom surface and the prism.

The sample cell is then clamped up to the chip. The sample cell enables to contact the liquid sample with the plasmon-supporting layer of the chip. During the measurements, the p-polarized light is aimed at the surface of the sensor chip, and the angular dependence of the reflected light intensity, the so-called resonant curve, is recorded

The angle changes quasi-continuously over a preset range by the motorized prism drive. The device allows for the measurement of the angle-of-incidence of the light on the plasmon-supporting layer in the glass.

The prism rotation axis lies, with feasible accuracy, in the plane of the sensor chip surface. The motorized prism drive consists of the screw/nut linear motion drive, the rotating holder for the prism with the arm connected to the nut, and the step motor (see figure above). The arm is connected to the rotating holder by way of a friction coupling, which allows for the angle-of- incidence to be preset manually using a grooved rim. When the step motor rotates the screw, the nut turns the prism holder through the arm and the friction coupling. One step of the motor results in approximately 10 angular seconds turn of the prism. The control program makes corrections for nonlinear dependence of the prism turn on the number of motor steps resulting from this geometry.

The Basics of the device, BIOSUPLAR



Advantages and features of BIOSUPLAR-6

1. Main applications:

- Adsorption kinetics, adsorption constants
- Interaction of biomolecules (antigen - antibody and others), binding constants
- Thickness and optical properties of thin organic films

2. Advantages:

- SPR measurements in liquids or in gases
- Two channels (model Biosuplar-321) for parallel or differential measurement
- Very low consumable costs
- Additional analog input (models Biosuplar-311 and Biosuplar-321)

3. Wide angle range:

- Up to 17 degrees, measurements from critical angle up to more than resonance angle for subsequent fitting to evaluate layer thickness and its optical properties

4. Open configuration:

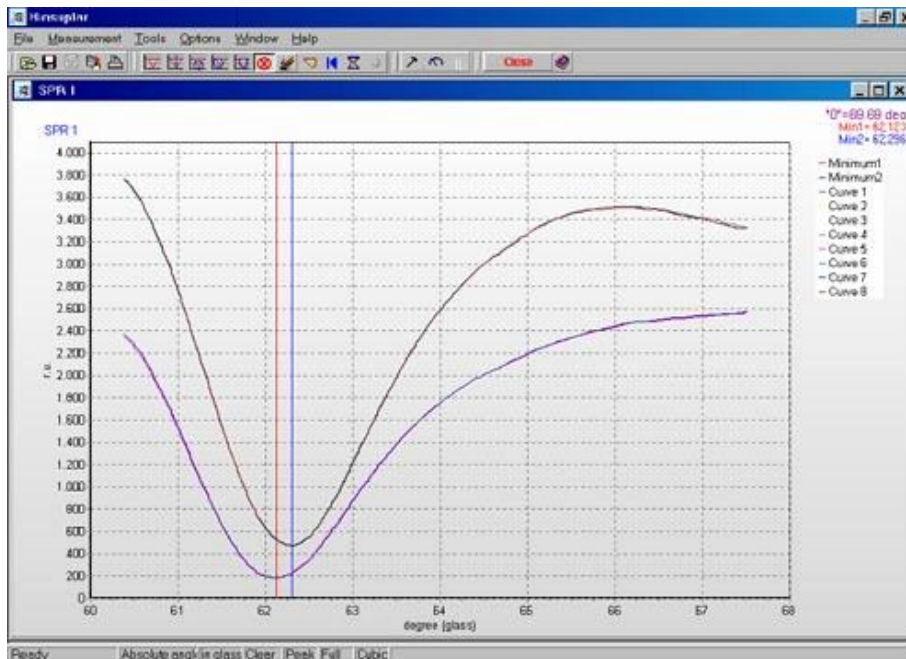
- Good for education purposes and easy adaptation for simultaneous measurements of SPR-fluorescence, SPR-electrochemical measurements, Surface Enhanced Raman Spectroscopy (SERS), AFM, SEM, FT-IR spectroscopy or other particular experimental tasks
- Easy to use (learning time less than one hour)



Includes:

- Software
- 2 flow cells
- Interface cable
- Two prisms for gases and aqueous solutions
- User's manual
- Gold coated glass pieces: 60 slides

Software for BIOSUPLAR-6



Specification of BIOSUPLAR-6

- 1. Cell:** flow cell, with volume of about 20 μ l
- 2. Light source:** low power laser diode (630 - 670 nm)
- 3. Maximal angle scan range:** up to 17 $^{\circ}$
- 4. Measurement time:** for single curve less than 20 s,
in tracking mode less than 2 s and in slope mode 0.1 s
- 5. Angular resolution:** better than 0.003 degree
- 6. Interface:** Serial interface (USB on request)
- 7. Requirements to computer and operational system:** PC, Windows 98/2000 or Windows XP,
at least 500 Mhz
- 8. Size (without computer):** 20 cm x 9 cm x 8 cm
- 9. Weight:** 2.5 kg

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