

Miniature BLS setup



The miniature BLS setup is a compact and complete back-scattering setup that can be used to test a TFP-1 or TFP-2 spectrometer. Being quite small, the setup can be used without removing to the remaining optics surrounding the device.

It contains two lenses (one to focus on the sample and gather the signal, one to input light in the instrument) and a 50:50 beam splitter. In order to create a visible signal, it requires only a beam of laser light and a sample.

Installation and alignment

- 1) Switch off the detector and close the output pinhole before installing the tool. Set the shutters switch to "off" on the TFP control unit.
- 2) The miniature BLS setup must be mounted immediately before the spectrometer input pinhole, removing the front cover of the pinhole wheel and using the two M3x8 screws to fix it.
- 3) The incoming beam for scattering must enter the tool through the glass window underneath. After hitting the beam splitter, a part of the beam will then be sent at left, through the focussing lens. Use two mirrors to set the beam orthogonal to the bottom window and positioned in such a way to hit the focussing lens approximately in the centre. Use the top rotating plate to stop the fraction of the input beam that travels vertically after the beam splitter.
- 4) Place a metal surface on the focus point of the lens and observe the spot created by the reflected light at right, after the input lens. Start from a large setting for the input pinhole of the spectrometer. Open the spectrometer lid, at least partially, and place a paper screen immediately before FP1, to see the light entering the instrument. Rotate the X and Y nuts to make sure that the light get through the current pinhole and is visible inside the spectrometer.
- 5) Reduce progressively the input pinhole size; move again the X and Y positioning nuts to get the light through each pinhole and as centred as possible, until you can get light through the smallest one. The focus of the input lens is adjustable, if necessary, by turning the bolt containing the lens.

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Use of the miniature BLS tool

Close the input pinhole, switch on the detector and align the TFP as usual. Once the instrument is in tandem mode and shutters are correctly operating, the input pinhole can be opened. Place your test sample at left of the focussing lens, over the setup's base plate. The focussing lens has a focal length of 10 mm, so the sample should be quite close.