

	TECHNICAL SUPPORT BULLETIN	Tech. Support Bulletin No. (NBSB- 0107)
	<i><u>(Adjusting laser focus on a StarGate Scanner)</u></i>	Page 1 of 4 Products: Dimension Icon, Dimension Edge, FastScan
Revision	Description	Date
A	Initial Release – Ruizi Chen, Mark Hilton	1/13/2012

Subject: *(Adjusting laser focus on a StarGate Scanner)*

System(s) Affected: (StarGate Scanner)

Action Category: (As Required)

Summary: (Optical interference might show up in the AFM image under certain conditions. If changing the laser spot position on the cantilever and changing the probe did not help, adjusting the laser focus inside the StarGate head will help eliminate the interference. **DO NOT** use this procedure unless you are a Bruker representative or are instructed to do so by a Bruker representative)

There's normally no reason to adjust the laser focus. Optical interference in the AFM image can be eliminated most of time by adjusting the laser spot position on the cantilever, or by using another kind of probe. If you have tried the above but cannot get reasonably good image, please proceed.

Tools Required:

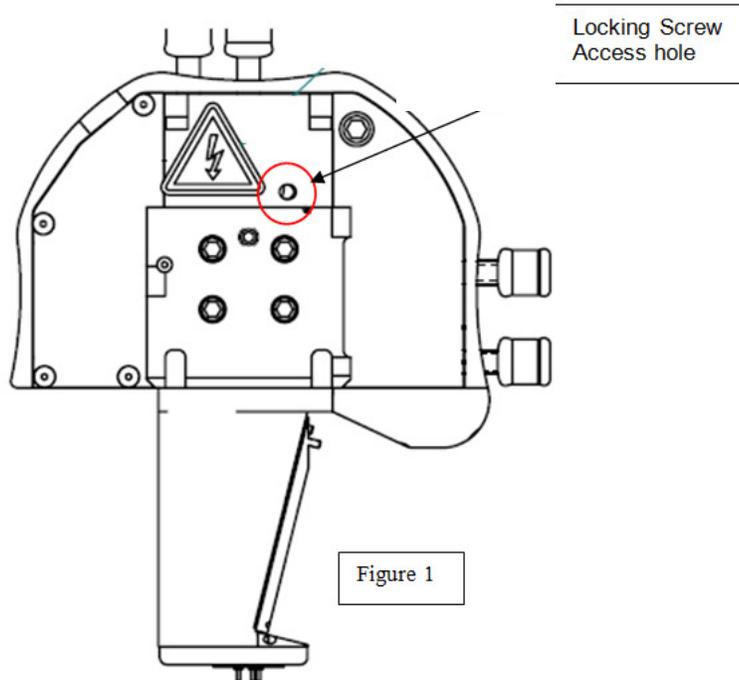
1. .035 Hex Key
2. .050 Hex Key
3. Small Flashlight

There is an adjustable lens inside the StarGate head that focuses the laser on the cantilever. The goal of this procedure is to adjust the lens so that the laser spot is optimum on the cantilever. The lens is adjusted for standard use in the factory, and it shouldn't be necessary to adjust the lens again for most applications.

1. Loose the focus lens locking screw
 - a. Use the .035 Hex driver to loosen the locking set screw, from the back of the scanner, through the small hole just above the dove tail plate (Figure 1). Just turn the screw CCW 1/4 turn to loosen it. It is only held by a couple of threads. If the lens is still feeling stiff after you have loosened the set screw, come back and loosen it more.

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- b. You will very likely need the flashlight to find it. The set screw is located on the side. You will need to access it at an angle.



2. Use the .050 Hex driver to remove the access panel from the front of the scanner as shown in fig 2. It is the panel with the Bruker Logo on it.



Fig.2

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3. Align the laser on a cantilever. The probe and sample choice depends on your application.
4. You then need to rotate the shaft in fig. 3 to adjust the lens. You can either use a pair of flat head tweezers to do it, or use one of the Hex keys to hold the shaft, and push the shaft in one direction. Please do not apply too much force, nor twist the shaft, to avoid potential damage to the shaft.
 - a. There are small holes visible around the shaft. Try turning it by 2 holes to see if you are going in the right direction.
 - b. Look at the optical window with the laser spot on the StarGate head. The goal is to adjust the lens until the laser spot looks sharp and clean on the optical window. See figure 4.



Focus Adjustment
Figure 3



Figure 4 Clean laser spot

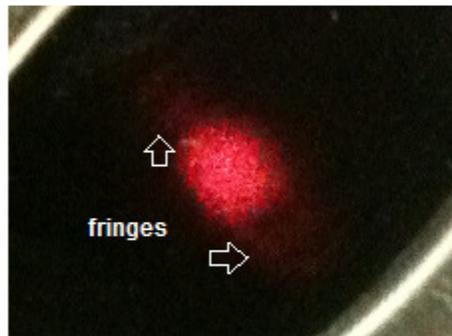


Figure 5 Fuzzy laser spot, often with fringes

- c. If the laser spot gets fuzzier, turn the shaft the other direction.
- d. It might be necessary to readjust the laser knobs after the shaft is rotated, to keep the laser on the cantilever.

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5. After adjusting the lens, lock the set screw in the back. Recheck to make sure the laser focus looks the same.
6. Replace the front panel access panel, secure the screws.