

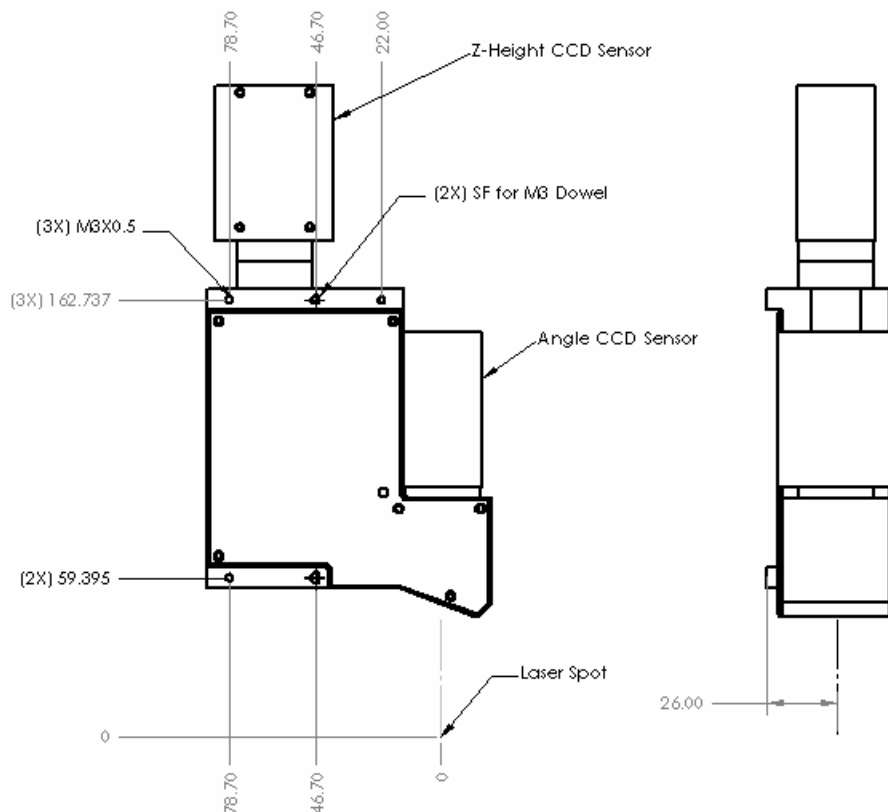
# SAZ V6 Probe Installation and Operation

Thank you for purchasing a SAZ V6 static attitude measurement probe. Before installing, please verify that you have received the following components:

- (1) SAZ V6 Measurement Probe
- (1) Laser power cable (Yellow Cable w/ a blue and a brown lead)
- (1) Frame grabber / vision processing computer card
- (1) Frame grabber power jumper
- (2) Camera cables
- (1) Hardware Key
- (1) Software CD

## Installation

1) **Mount the probe to the appropriate surface.** The SAZ V6 probe is secured by three mounting holes that are tapped M3X0.5 (refer to Figure 1). It is also recommended that two M3 dowels are used to ensure accurate positioning of the probe.



**FIGURE 1**

When handling the SAZ V6 probe, be careful not to touch any of the exposed optics.

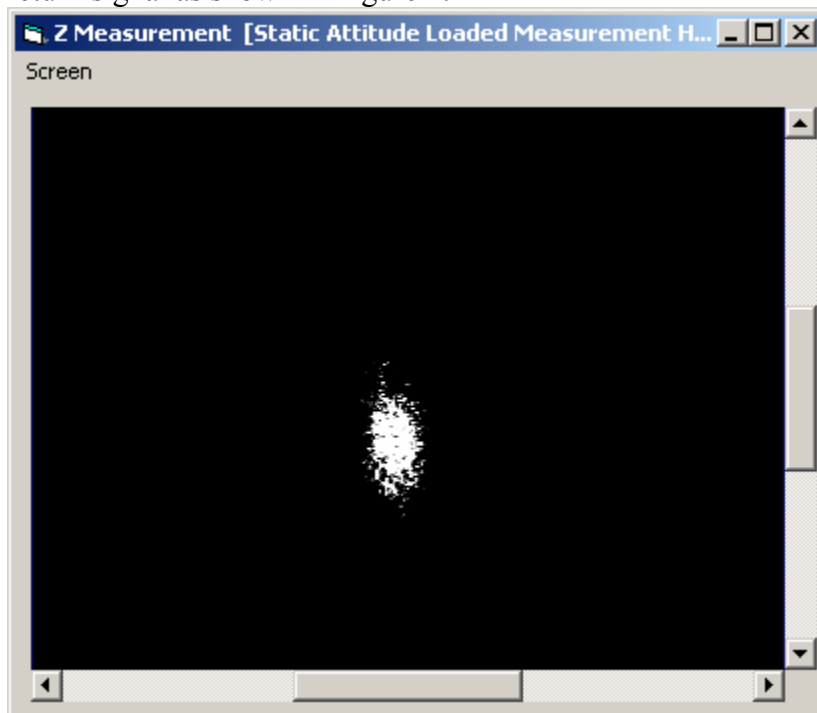
2) **While the computer is not powered, place the Cognex frame grabber into an open PCI slot.** Reference the installation instructions that were sent with the frame grabber. Be sure to connect the frame grabber to the PC power supply using the power connector that was included with the board.

- 3) **Attach the laser power cable to a regulated, filtered 5V power supply.** While the power supply is off, attach the blue lead to +5V, and the brown lead to ground/common.
- 4) **Connect the CCD Sensor cables to the frame grabber and CCD Sensors.** Attach one cable to the upper port on the frame grabber card. Attach the other end of this cable to the Z-height sensor (refer to Figure 1). Connect the remaining CCD Sensor cable between the Angle CCD sensor and the lower port on the frame grabber card.
- 5) **Connect the yellow laser power cable to the two pin connector on the top of the SAZ V6 probe.**
- 6) **Insert the Hardware Key into an open Parallel Port on the back of the PC.**
- 7) **Turn on the PC and 5V power supply.**
- 8) **Reference the “AKI SAZ Probe DLL Installation Manual” for software installation.** Available for download from [www.appliedkineticsinc.com](http://www.appliedkineticsinc.com).

## Quick Start Probe Parameter Guidelines

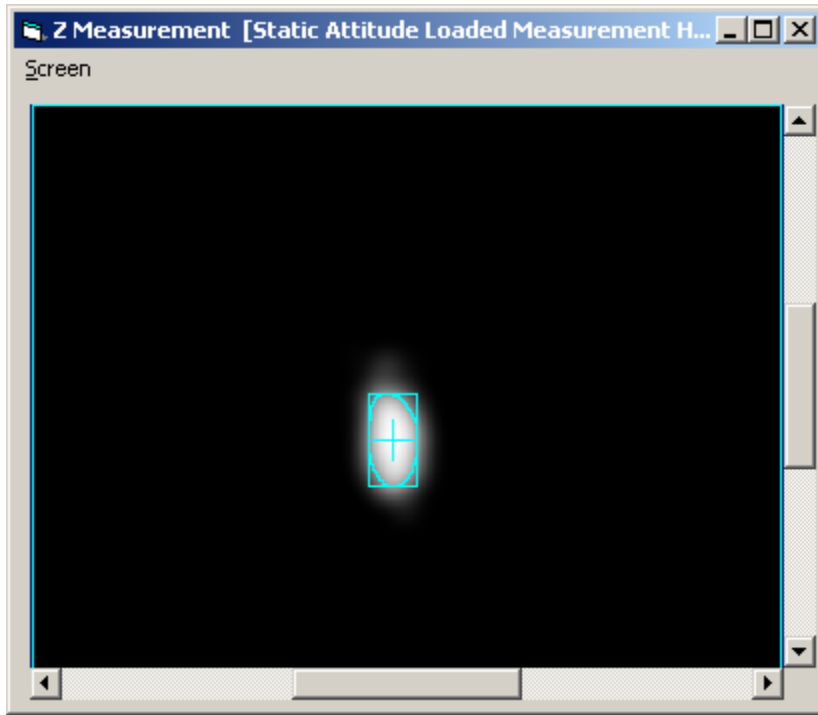
This probe has been designed to measure static attitude angles on both conventional suspensions and Head Gimbal Assemblies. The probe parameters should be optimized for each specific material type in order to achieve adequate measurement results. A thorough explanation of each of the available probe parameters is detailed in the “AKI Probe DLL Instruction Set”. An example of the measurement signals is shown below for both the Z-height CCD Sensor, and the Angle CCD Sensor.

1. **An optimized Z-height signal should look comparable to the one shown in Figure 2.** To optimize the signal, first set the Contrast to 80, and the Brightness to 95. Verify that a Z-height signal is present (the part being measured is within the measurement range of the Z-height sensor). Then reduce the brightness value until the signal does not saturate the CCD Sensor, and still has a cohesive, oblong return signal as shown in Figure 2.



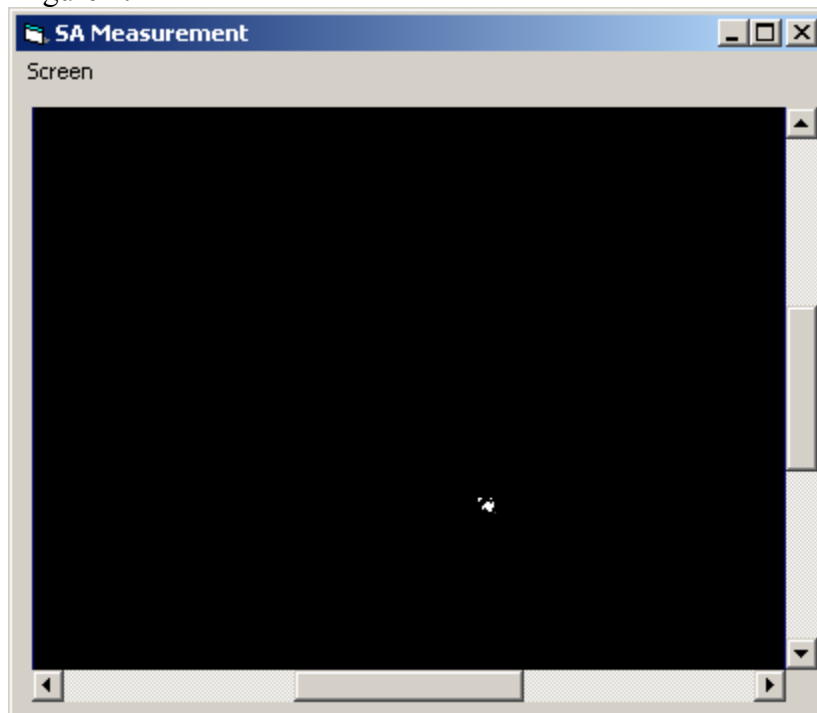
*FIGURE 2*

2. **Utilize the smoothing function for the Z-height signal to further improve the cohesiveness of the return signal.** Figure 3 provides an example of smoothing to 16 pixels on the Z-height signal shown in Figure 2.



*FIGURE 3*

3. **The brightness and contrast need to also be optimized for the angle CCD measurement signal.** To start, set the contrast to 100, and the Brightness to 95. Verify that a return signal is present, and that the surface being measured is within the measurement range of the Angle CCD sensor. Lower the brightness value until angle measurement signal is a small cohesive spot similar to that shown in Figure 4.



*FIGURE 4*