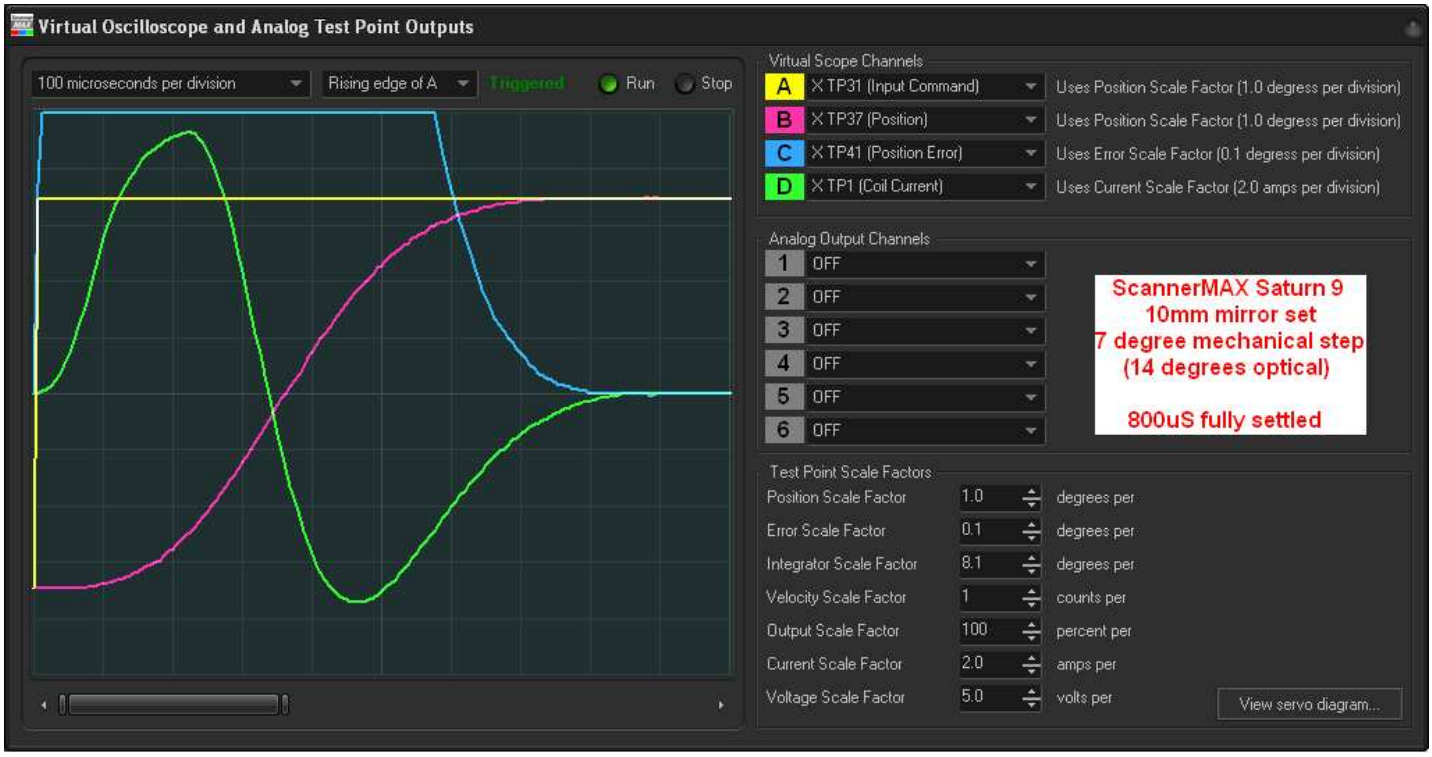
How fast can the ScannerMAX Saturn 9 execute a 14-degree optical step with 10mm mirrors?

A customer contacted us stating that they wanted to know how quickly our Saturn 9 scanner could execute a 7 degree mechanical (14-degree optical) step. We performed the measurement documented below. See the screen shot attached which shows our virtual oscilloscope, which is a part of our servo driver.

The yellow trace shows the command input. The pink trace shows position. The blue trade shows error. And the green trace shows current.



This is our standard Saturn 9 scanner with our mirror set capable of projecting 10mm beams over 40 degrees optical in both vertical and horizontal. This particular mirror set is made for vector scanning, so both X and Y mirrors have the same inertia (something unique to ScannerMAX scanners).

The customer did not note whether or not 14 degrees optical was the maximum scan angle. If so, the mirror size could be reduced and step time would be decreased.

ScannerMAX routinely delivers 10mm systems that execute small steps in 300 microseconds, and 40-degree-optical steps in 1 millisecond. Although competitors deliver systems that execute small steps in less than 300 microseconds, those same systems can not execute large steps in such a short amount of time. The Saturn 9 scanner is a very versatile scanner, particularly well suited to large-signal applications.

In 2017 we introduced another coil configuration (called –46S) for the Saturn 9 which has lower impedance, and could reduce this step time further.

ScannerMAX galvo offerings and specifications can be found at www.ScannerMAX.com