

# Impulse Response of the 59579-02 Wide-Angle Sensor

## Tech Note

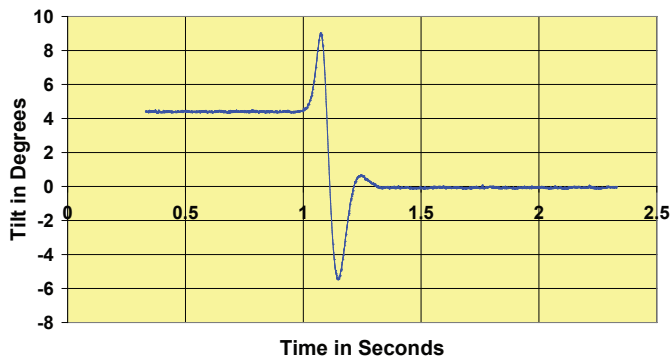
The following graphs show the response of the viscously damped 59579-02 Wide-Angle Sensor to a sudden impulse. The impulse was generated by rotating the tiltmeter through angles of 19.8 and 4.4 degrees by pulling a gage block out from under the tooling ball at one end of a Model 791 Tiltmeter Calibration Plate. The tests were performed at room temperature, about +25°C.

The results of the impulse test can be seen in graphical form in Figures 1 and 2. These figures show two different step sizes, 4.4 and 19.8 degrees.

Inertia in the tilt sensor fluid causes a phase lag that appears as an overshoot at the start of the rotation. When the sensor comes to rest, fluid inertia causes a half-cycle of oscillation in the opposite direction. The initial tilt overshoot increases with step size.

The Model 59579-02 sensor is suited for all wide-angle tilt applications, including those in which machine vibrations might result in resonance in an undamped sensor. This sensor is used in the Model 801-W Tuff Tilt Uniaxial Tiltmeter, in the Model 84064-02 Wide-Angle Sensor Assembly with mounting bracket, and is sold as the standalone Model 59579-02 Wide-Angle Ceramic Sensor.

**Figure 1: 4.4-Degree Step  
+25 Degrees Celsius**



**Figure 2: 19.8-Degree Step  
+25 Degrees Celsius**

