Philtec Application Note Vol. 6, No. 10

July 2004

Side-Viewing Sensors
(for Shock Testing)

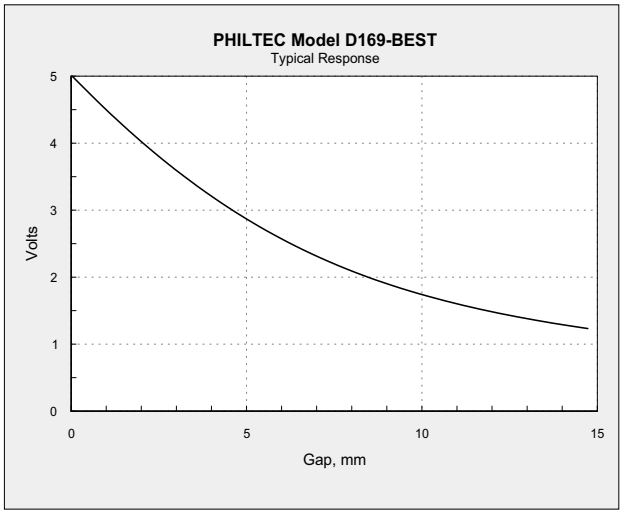
THE PROBLEM

Sensors were needed to capture dynamic measurements during a pyro shock test. Available space was tight: the sensor needed to fit within a gap of 25 mm and the target was to be located 10 mm from the sensor. Additional sensor requirements:

- Bi-directional displacement of ± 4 mm was expected
- A frequency response of 10 KHz
- The sensor would need to survive shock loads of up to 200 g's from any direction

THE SOLUTION

Philtec's side-viewing sensor model D169-BC1EST was designed into this application. The sensor tip was ruggedly constructed for shock survivability with a right angle prism solidly embedded inside of a threaded housing.



The fiberoptic cabling is 10 Ft long with SS Interlok sheathing and an in-line connector located 3 Ft. from the sensor tip.

Side-Viewing Probes (*available for D models only*)

Side-viewing probes turn the light signal 90° in minimal space by utilizing a right angle prism bonded to the face of the fiberoptic bundle.

With standard end-viewing models, type D sensors have near side and far side operating regions.

With side-viewing D probes, only the far side region is available (with less linearity than standard models).

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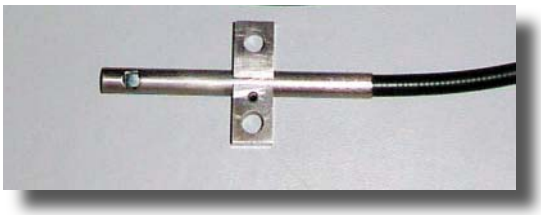
Side-Viewing Sensors
(for rotor spin-off test)

THE PROBLEM

Sensors were needed to capture ~30 mm of structural deflection during a jet engine rotor spin-off test. The distance from the sensor to the target was 2” prior to the event. The target gap would close during the shock event. Available space was tight, therefore side-viewing sensing was required.

THE SOLUTION

Philtec’s side-viewing sensor model ***D171-BEST7*** was designed into this application.



DESCRIPTION

The system has 40 feet of fiber-optic cabling, an in-line connector located 1 foot from the sensor tip, and a ruggedly constructed side-viewing tip to which a mounting bracket was secured at the factory. This special tip design with mounting bracket allowed for an easy and secure customer installation.