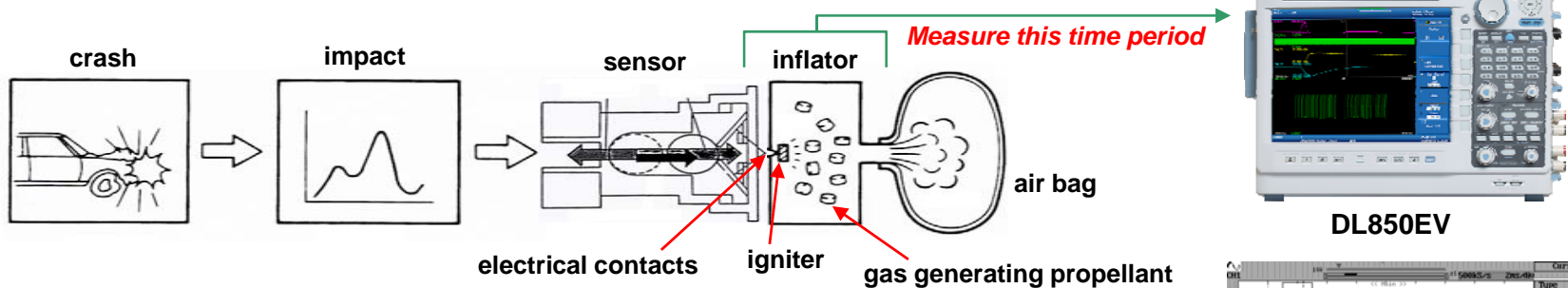


Timing Test of Side-Impact Air Bag

[Application]

Side-impact air bag installation varies from vehicle to vehicle. Generally it consists of a 17-liter air bag module mounted in each door panel and inflatable tubes mounted along the roof rails or in the seat. While a conventional SRS (Supplementary Restraint System) air bag system protects the driver by cushioning the secondary impact with the steering wheel during a frontal impact, the side-impact air bag is designed to gently force an occupant into the center of the vehicle and prevent contact with the door panel. Side-impact air bags are therefore designed to operate at higher inflation pressures and deflate slower than frontal-impact air bags. The critical test is the timing from the point of triggering the igniter to the point where the air bag begins to fill with gas. Ideally this time period should be less than 4mSec. This deployment test procedure should be recorded by a high speed video camera according to SAE J211. The video can then be used to investigate, evaluate and analyze problems with the inflator, seat or roof rails.



[Solution Feature]

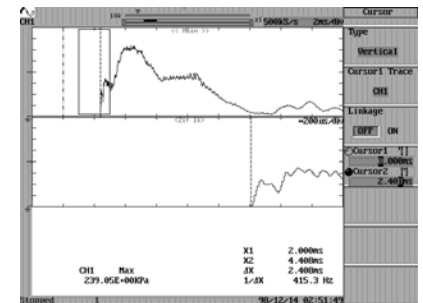
The Yokogawa Model DL850EV provides the following solution for this application :

1. Various Plug-in Modules

The DL850EV has, in addition to Voltage Modules, Strain and Temperature (TC) Modules to measure pressure and temperature simultaneously. The Strain Module provides transducer excitation and signal conditioning.

2. Versatile Measurement Function, Cursors and Auto-Measurement

Time measurements of the firing pulse for the igniter to the beginning of bag inflation can be easily, efficiently and accurately made by using the several different cursor functions.



The above figure is an example of measuring the output of a pressure sensor in an airbag.

The trigger point is the firing pulse to the igniter. Delay time from ignition to pressure increase is measured using the cursors. Because the DL850EV can display all acquired data, this high speed sampling with a long time window (long time base) gives you precise measurement.