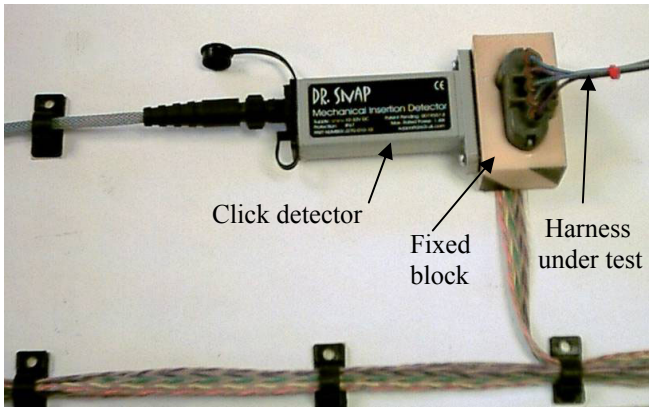
DrX Application Note

DrX	DrClick, DrSnap
Subject	Detecting positive connections on cable loom testing rigs
Note Ref.	**AN270.11**

Detecting positive connections whilst testing cable assemblies

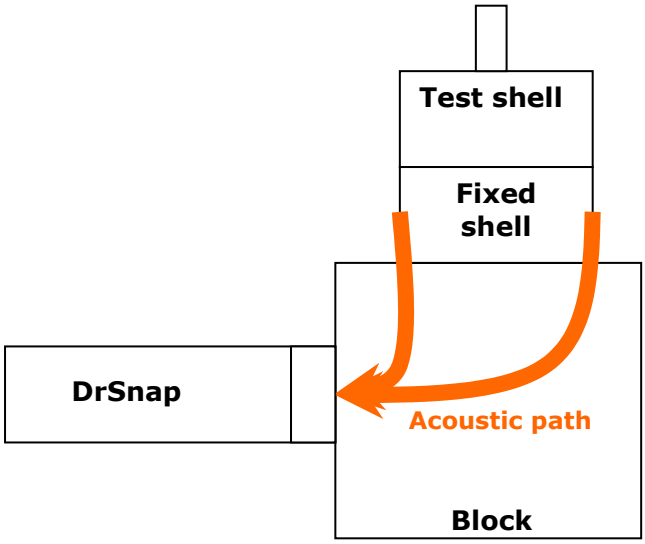
Once a cable loom has been assembled it is usually tested on a static rig. This normally comprises of a table with number of blocks supporting the mating sections for the harness. These mating connectors are wired in order to carry out electrical wiring integrity checks.

One of the problems faced with repeated testing is knowing if the shell-to-shell connection is fully secure prior to the electrical testing being undertaken. Normally mating connectors will give an audible 'click' when the parts are pressed fully home. However, this is not always heard in the normal environment of an assembly plant.



To provide an extra layer of testing security DrClick and DrSnap have been used to act as 'click' sensors for this type of application.

Acoustic Paths



When the two connectors are pushed together the 'click' they produce has significant wideband energy and produces a healthy ultrasonic signal. This is advantageous in that there is little ultrasonic noise in the general environment and so its detection is relatively easy. The problem however, is how to get the energy from the source of the 'click' (the plastic shells) to the contact sensor on the DrX unit.
The method relied on is that of conducted acoustic path. Close fitting of the DrX to the static rig combined with rigid fixing of the test connector provides direct acoustic coupling of the signal. The energy of the 'click' will travel through the connector shell, through its fixing mechanism and into the support, hence to the DrX unit.

It is conceivable that crosstalk may occur between various test points but this is of little consequence as only one connection is made at any time.