

DrX Application Note

DrX DrClick, DrSnap
Subject Detecting ultra-quiet clicks on a cable assemble line
Note Ref. AN270.06

Detecting ultra-quiet clicks using a specialist jig



A cable harness assembly company had gained the contract for assembling wiring looms for certain parts of Jaguar Cars. In particular the DVD player connection was very small consisting of 20 separate wires requiring insertion into a plastic connector shell of 12.5mm diameter.

As all these connectors are assembled by hand a quality procedure or 'drill' is in place. For each pin inserted the operator must:

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| PUSH | insert the pin into the connector shell |
| CLICK | listen for a 'click' |
| WIGGLE | pull the wire to test if it is secure |

The problem with this particular connector was that the click was extremely quiet; almost inaudible even in a laboratory environment. In a factory situation with many people talking, the radio playing and the general noise levels from the manufacturing processes it was impossible for the operators to fulfil their quality instructions.

Equipment and Task Identification

Development of a simple jig which was then applied to a standard 'DrClick' unit produced excellent results. Each time a pin was pushed in and produced the locating 'click' the sound is conducted through the hard plastic body of the connector to the spring loaded ultrasonic sensor. DrClick indicates the detection of the click by a light which lasts for about 300ms, thus informing the operator that a click has occurred.

The jig incorporated a latex buffer around the connector to ensure that conduction of other noise sources (i.e. the operators hands, wedding rings, etc) to the sensor would be minimised. The unit also has a quick release mechanism for easy loading of the work-piece.

Reports from the shop floor indicate excellent results and easy application and are now to become standard supply on all difficult connectors with high quality demands.

DrSnap would have performed equally well in this application but would be used if the click detection needed interfacing to an external device such as a beeper.



DRX SERIES