End of Line – SFT
Seat-Function-Tester

Quality management
Standardized all-rounder

The EOL tester is a compact mobile unit with a 19" raster and it executes testing assignments for car and utility vehicle seats. The central element of this plant is the seat-measuring module which has been further developed to meet the high requirements of a complex seat test.

EOL-Tester with Merlin
Berghof is a leading provider to automotive suppliers and OEM for testing and examining car seats. The demands made of test engineering are constantly rising due to on-going further developments and innovations regarding the features of seats in the automotive sector, both for cars and utility vehicles. In or

der to be able to continue to meet these demands in the future, a tried and tested measuring module has been further developed for the purpose of testing electrics. The result: Merlin.

An industrial PC with the Windows operating system is incorporated in the EOL tester for controlling, regulating and measuring. Depending on production organization, single seats or pairs of seats can be tested.

Merlin constitutes the complete front end of measurement and test engineering for vehicle seats. It assumes all requisite resistance measurements incl. protective circuits for measurements on airbags. All the consumers in the seat are supplied with voltage by Merlin and can be switched on and off separately. Each of these supply channels is equipped with a fast ammeter channel for assessing the correct functioning of the components in different operating states.

Merlin is suitable for testing many other components in the automotive sector.

Besides the familiar functions such as seat adjustment, seat heating – with or without a control unit - and airbags, many more functions installed in a vehicle seat can be tested, such as:

→ Power lordosis and massage mat
→ Automatic child-seat recognition in the front passenger seat (AKSE)
→ Bladder mat
→ Recognition of front passenger's weight
→ Belt closure, seat-belt pretensioner belt-end fitting
→ SBR: Seat Belt Reminder
→ AV fan (active ventilation)
→ CAH Crash-Active Headrest
→ Easy Entry
→ STS: Seat Track Sensor
→ Foot well and ambient interior lighting
→ Storage box
→ Crossover test
→ Multimedia screens in the headrests

This extremely wide variety of functions requires, for example, current measurements in another range of measurement (seat adjustment with six seat axes and currents at up to 80 A and sensors in the m A range). The evaluation of individual current values and analysis of current curves are feasible here.

Merlin possesses an internal, high-performance power supply unit, and integrated test card from National Instruments and a technology for measuring resistance and output. The high- performance power supply unit is wired to six outputs. Each output is equipped with an instrument shunt to measure the current. The measurement ranges can be defined specifically for the customer. One special feature is the parallel current measurement along the different supply routes. In all, resistance measurement possesses eight measuring channels. The amount of measurement current can be configured individually. The maximal current for the airbag measurement is limited. The airbag connections are short-circuited when at rest. There are monitoring inputs for the test cable (home position or plugged in).
The contacts to the vehicle seat can be connected directly by means of the Harting plug-in connectors installed at the rear.

All of the components are installed in a 19" housing which is supplied with 230 V operating voltage as standard.

As with all Berghof test benches, the test application programmed in NI LabVIEW offers the following functions:
→ Operator interface / User interface
→ Version management
→ Parameter management
→ Result management
→ Individual test sequences
→ Master computer connection
→ Service functions