

One-stop automation

Test rig control for car cigarette lighters - follow-up orders from CASCO SCHOELLER GmbH

ECKELMANN AG develops and manufactures complete automated test systems for reliability, function, accuracy and endurance testing facilities. The service depth covers the full spectrum from consulting through the mechanical and electrical structure and programming to commissioning and after-sales service. A suitable automation concept is drawn up for customers who already have test rigs.

As numerous control and operating processes run in repeatedly similar ways, independently of the specific field of application, ECKELMANN has defined function blocks and has grouped them in the E•XACT module library. These modules were conceived so that they can be adapted easily to the diverse range of possible testing tasks. As a recognised member of the Alliance Programme of National Instruments Germany, ECKELMANN relies mainly on the LabVIEW development environment when creating test software. However, field bus module and data acquisition cards from NI are also used.

The hardware platforms on which these modules are implemented can also be chosen depending on the size, complexity and technical environment of the test applications. This is why three different basic models serve as the basis for test rig automation:

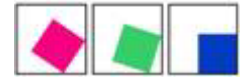
- PC with I/O and system bus cards (GPIB, RS 485, CAN, etc.) and configurable standard software
- PC with field bus and application-optimised test software, if necessary with realtime-enabled additional module
- Realtime-enabled microprocessor hardware with field bus and application-optimised testing software

As add-ons, these basic models can be extended with frame grabber cards for image processing tasks such as completeness checking, measurement, position recognition and surface checking.

Testing of brake pedal switches

CASCO SCHOELLER is a member of the international "CASCO Products Corporation" group of companies, which has been on the market for more than eighty years as a manufacturer of electromechanical components for the automotive industry. CASCO delivers cigarette lighters, power sockets, sensors, switches and voltage transformers for almost all renowned automobile makers.

After successful realisation of an automated test rig for brake pedal switches, in a further project Eckelmann AG has automated a test rig for quality testing of cigarette lighters.



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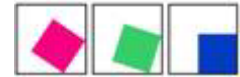


Fig.: The Casco cigarette lighter test rig

The process is controlled, and measured values are recorded, via a PC, largely programmed graphically with the NI LabVIEW 6i development tool under the Windows NT operating system. The application software offers all the possibilities of convenient operation, visualisation and logging. Test reports for individual test objects, accompanying slips for a packed unit or reports on the tests of several test objects can be printed on a printer.



Fig.: The Casco cigarette lighter test rig (detail)



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Automation competence typical of the sector

The testing system described has now been commissioned successfully. ECKELMANN AG is currently realising further projects for test rig automation at CASCO-SCHOELLER GmbH for function tests of cigarette lighters. However, automation solutions have also been developed, and are being developed, for other customers in the automotive supply sector. For example, we are currently developing a housing force displacement test rig for Continental Teves AG.

Across all kinds of test rigs and all sector-specific requirements, the re-use and enhancement of partial solutions already realised in a modular system has proven to be a process of modern test rig automation that both saves costs and assures quality.

We would like to thank Casco Schoeller for their amiable support.