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test &
measurement



MCD ELEKTRONIK IN BRIEF

In 1983, MCD Elektronik was founded by an idea: A newly-developed attenuator for adjusting output levels at RF transmitters. Today, 50 specialists are employed by this manufacturer of test systems. They develop, design and implement customer-specific solutions and their main focus is placed upon a user-friendly and efficient measurement data acquisition.



www.mcd-elektronik.com



Guardian of the sound

Measurement system to test analog and digital sound systems

Audio Analyzers are versatile, whether for testing infotainment systems, structure-borne sound measurements or for testing of blinker relays. It would only be better if the devices can be used directly in production. This is how manufacturers save on expensive laboratory analyzers.

Modern cars are now packed with electronics: navigation system, hands-free unit and driver assistance system. These systems are operated centrally via the so-called infotainment system. In order to provide the driver with the latest information, the system exchanges voice signals and digital information permanently with the vehicle off - mostly on the UMTS mobile phone standard. For use, such systems are mainly implemented in the high-end vehicles. Therefore, the demands of the voice quality of the infotainment system are high as well. To ensure this, the car manufacturers or their suppliers will need the appropriate measurement technology. In addition to the high-frequency characteristics, more essential is the capability to check the quality of the audio transmission. The company MCD from Birkenfeld has come to specialize in the development and manufacturing of test stations. The company

supplied, for example, an UMTS module tester to a large automotive supplier. The 19" rack test stand in this case contains two MCD Audio Analyzers. That way, the audio transmission to the digital and analog interfaces is measured simultaneously on two modules. The Audio Analyzer is developed for fast measurement methods; therefore, the voice quality can be determined parallel with the high frequency test procedures. That way, the modules can be tested step by step with the production.

The New Generation

MCD has sold more than 500 Audio Analyzers and now decided to introduce a new development of this test device to the market. The new version of the device convinces with its practical 'space-saving' housing that can be inserted into 19" racks. Customers use the analyzer mainly for testing and

calibration of analog and digital sound systems.

The device has a configuration via analog, digital and optical input and outputs. The applications range from verification of amplifiers, infotainment, switching power supplies, proximity sensor, and high-frequency modulators, to the balance of tuners, transmission testing of converters, sound examination and speed measurement.

MCD's CEO Bruno Hörter reports: "We have specially designed MCD's Audio Analyzer for use in production. The device supports fast measurement methods, as they are particularly demanded in the production of audio devices. The Analyzer is well integrated into automatic test systems and provides an inexpensive alternative to high cost and over-sized laboratory analyzers."



Next to the test rack of the UMTS Module test station is MCD's universal adapter, which in this case holds six samples. At the top of the 19" rack you can see the new AudioAnalyzer.



An integrated web server sends the statistical values of the measurements directly to your iPad.

The Test: Car mirrors, Wipers and Valves

An important application of the AudioAnalyzer is structure-borne sound measurements. That enables the MCD device to test the engine and gearbox noises of electrically-controlled components such as automotive mirrors, wind-screen wipers and central locking. What should be detected in the tests are possible errors in gear ratio, rotation and noise level. The evaluation of the signals takes place on envelopes. These sound and functional tests in the production improve customer satisfaction. In addition, the data can be used for documentation of production and development to improve the product quality.

For luxury sedans, sound engineers scrutinize everything that creates noise, under the magnifying glass. Not all device noise is perceived as a disturbance; often it conveys a sense of security. An example of such noise is the clicking of the blinker relay. MCD has built its own test station for the sound testing of the blinker relay. The measurement is performed with microphones that receive the clicking noise and the programming was done within the Analyzer software. What in this case was detected was the lack of a click or a departure from the sound. Measurements of switching power supplies on typical sounds in the audible

audio range have also been carried out. An example of a disruptive noise would be whistling coils.

Autonomous Test Systems

An important option of the AudioAnalyzer is the integratable Micro PC. Together with the Test Manager software and additional components from the product range of MCD, autonomous test systems can be realized. With the TestManager, the Analyzer is fully remote controllable. The DataManager then calculates the statistical values of the measurements and the quality numbers. They are used as an acceptance criterion for the customer. All test contents are in original code and can be extended and modified by the authorized personnel. New sample types or test procedures are easy to create. Combinations of testers with boundary scan and functional test capability are also realizable. MCD develops complete test systems according to the customers' wishes as offline or inline systems. The support ranges from the customer's first contact via customer support, to RFQ's, approval procedures, FMEA, all the way to delivery and installation. MCD also provides the calibration and after-sales service.

/ Joachim Tatje, Owner, Viatico

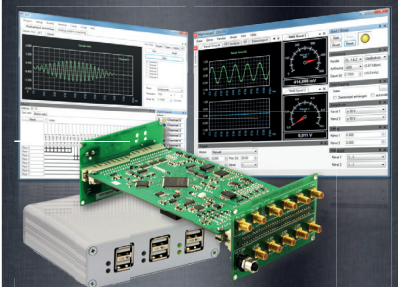
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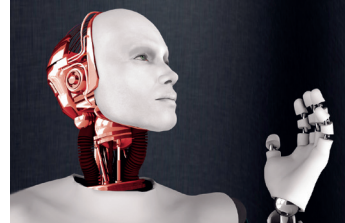
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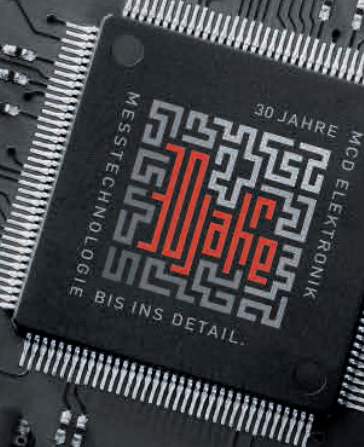
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MCD Elektronik GmbH
www.mcd-elektronik.com

info@mcd-elektronik.de
+49 (0) 7231 78 405 - 0
Hoheneichstr. 52 - 75217 Birkenfeld

www.issuu.com/mcdelektronik



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