

CUSTOMIZED

Industry: Automotive industry

Testing system for electric motor cables



Task

The requirement of this system in the automotive industry was to verify various cables with up to 10 cores and different connectors for electric motors. Despite the small distances between the individual terminal lugs, a high voltage test up to 5,500 V AC and 6,000 V DC supposed to be possible here.

Solution

Various connector plugs were produced for the various types of circuits. Via interchangeable transfer fields the appropriate test adapters for the most varied motor cables could be connected. The signals are transmitted via high current and spring contact probes. The arrangement is such that there are no flashovers in the connector plug during the high voltage test. This was accomplished via special insulations of the contact pins. Besides the high voltage test, a resistance test also was conducted with 4-wire technique. All tests are automatically performed after connecting the cable once. To protect the user, the system was equipped with a light curtain.

An arbitrary number of test programs can be stored in the testing system PC. This allows the customer to independently write new test programs when developing new products. However, for products with identical data, it is also possible to use the same test program, which is then allocated to the respective DUT over the product list. The test results are stored automatically in XML or Access format on an arbitrary place on the network.

A separate test dummy is used to check the functionality of the testing system fully automatically. During the daily start of the testing system, the testing personnel is asked to include this dummy and start the corresponding program. The testing system does not allow further testing without a passed dummy test.

Advantages

- + Turnkey solution including DUT support, adaptation and workplace design
- + Simple, intuitive operation for semiskilled personnel
- + The DUT needs to be connected only once, then the whole test process occurs automatically
- + In network operation, all test data is automatically saved at the specified location / database
- + Long service life and service-friendly design
- + Short cycle times through efficient workplace design with light curtain
- + All values and settings can be made using software
- + Automatic dummy test
- + Workplace safety according to EN 50191
- + The various change adapters can be connected to several types of cables
- + High-precision resistance measurement with 4-wire technique

Specifications

- Resistance test 2 mΩ - 200 kΩ in 4-wire technique
- High voltage test 5,500 V AC / 6,000 V DC / 100 mA
- Insulation resistance test: up to 1.2 GΩ