



We are specialists in cutting-edge **embedded electronics** and **Internet of Things** solutions.

We design and manufacture high-performance **process control** and **user interface** boards, as well as developing management **software**.

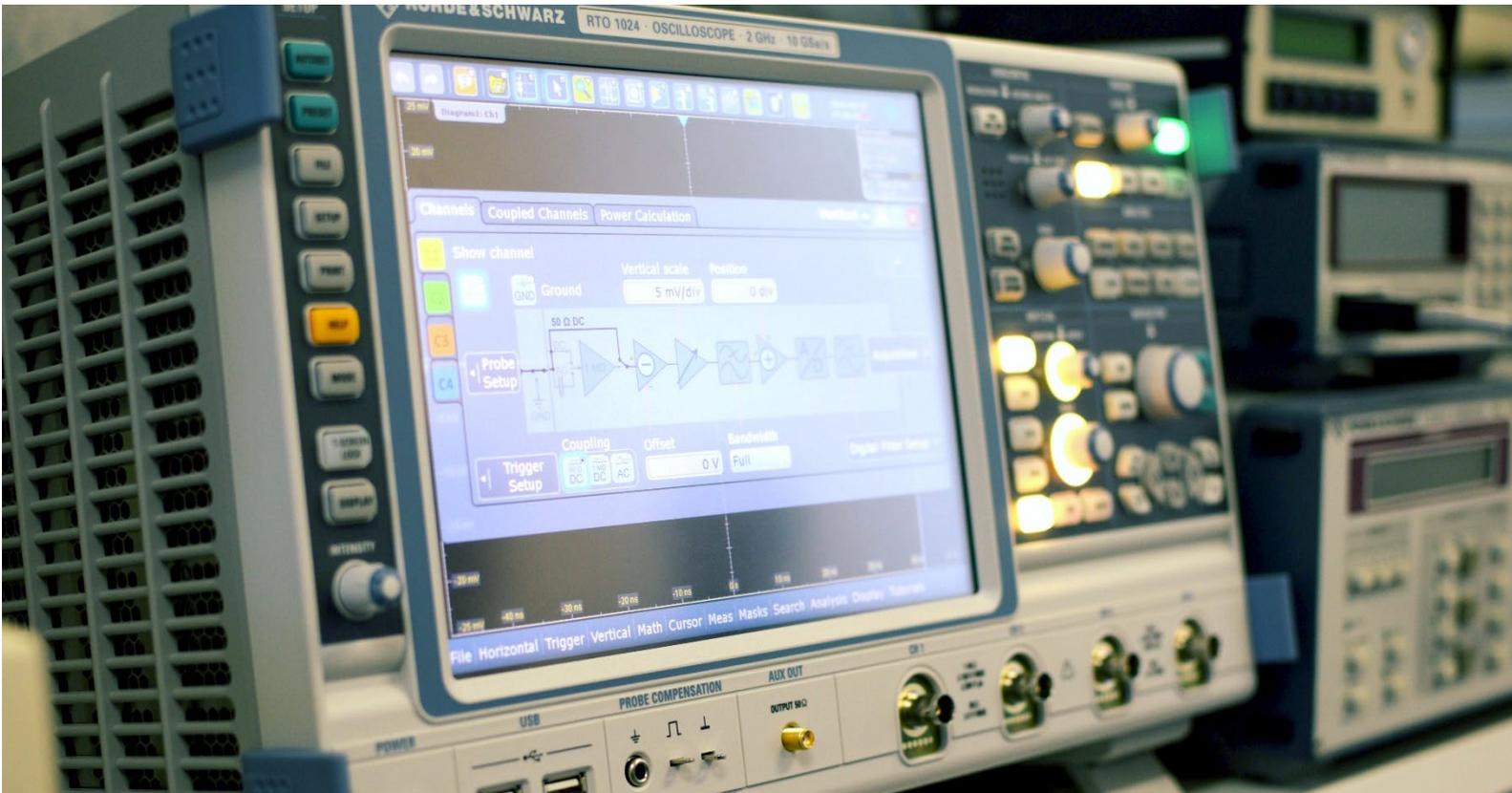
We were founded in 1984 with an ambitious goal:
to create **more reliable electronics**, developed to fully meet the specific needs of each individual customer.

We offer solutions for industrial automation which combine the most innovative technologies, high-quality design and extreme reliability, working in **close partnership** with our customers.

RELIABLE ELECTRONICS

We develop highly reliable electronics, immune from electromagnetic disturbances.

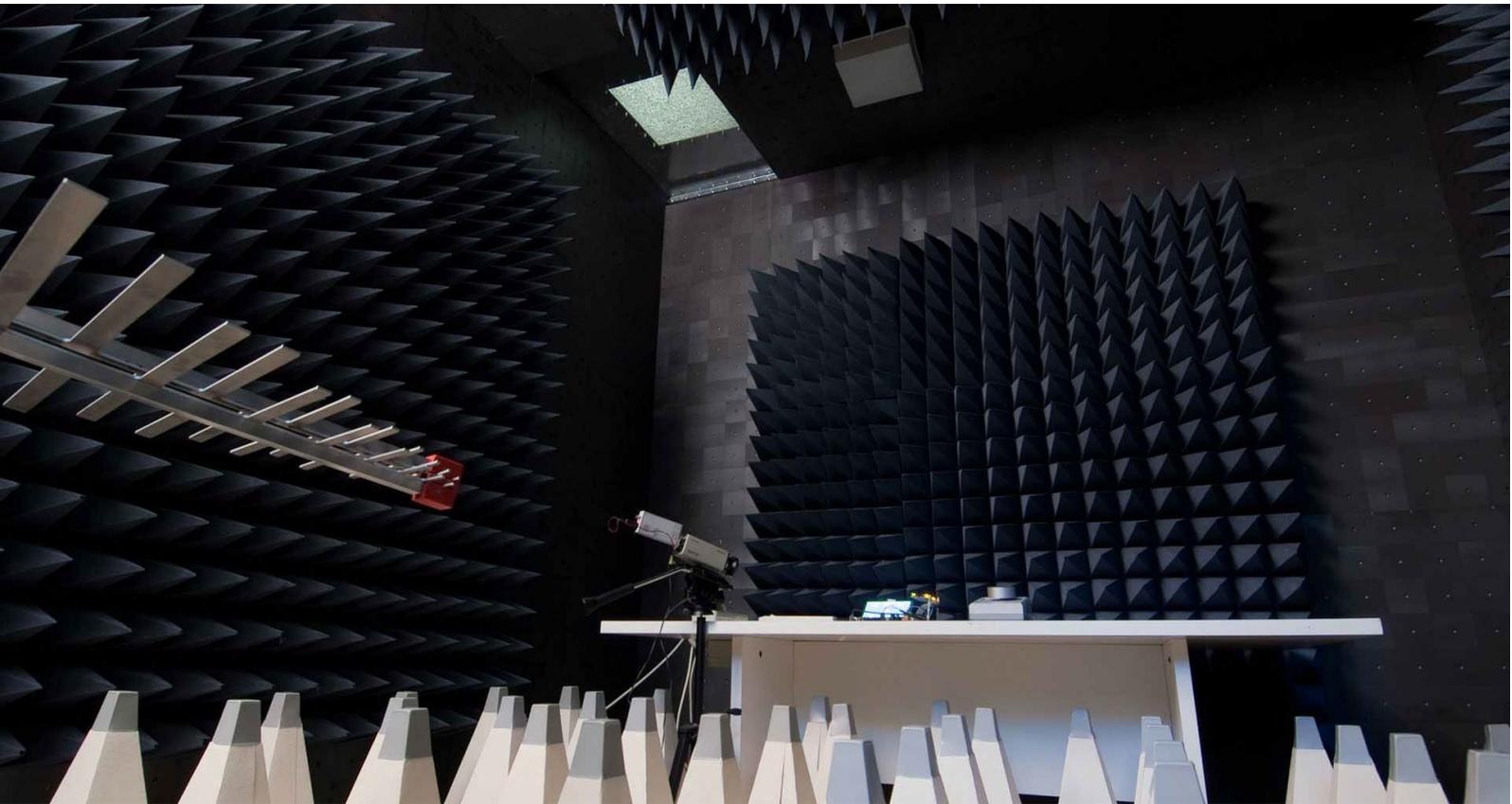
We can supply a pre-compliance report of the custom project.



ELECTROMAGNETIC COMPATIBILITY TESTING

Electromagnetic disturbances are one of the main causes for unreliable electronics. Unexpected resetting, loss of data, measurement errors, UI malfunctions and failure of IC components are all possible damage caused by electromagnetic disturbances.

We chose to equip ourselves with all the equipment required for electromagnetic compatibility testing, in order to have direct control over this crucial phase for obtaining highly reliable electronics.

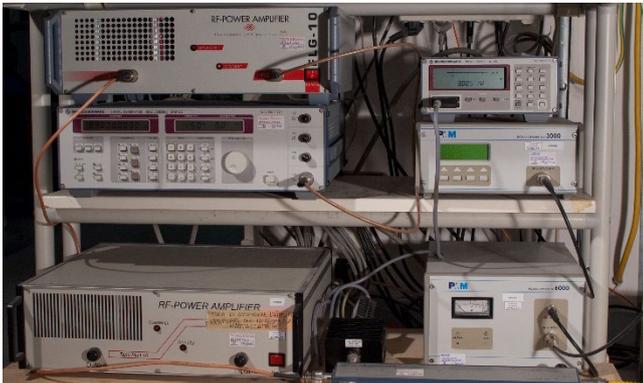


Tests to ensure immunity from radio waves

The immunity of the electronics is tested by subjecting the components to frequencies of up to 2 GHz. In the operating environment, these electromagnetic fields can be generated by external devices such as cellular or cordless phones. Any electronics not immune to these disturbances are liable to general malfunctions and incorrect readings of the signals from analogue sensors.



Tests to ensure immunity from radio waves conducted over cables



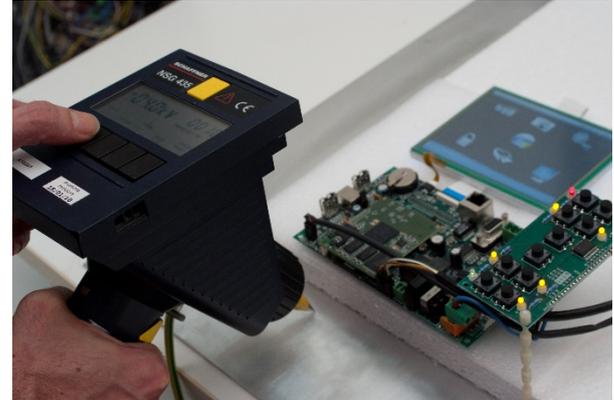
Tests are performed to ensure immunity to the injection of RF signals on the power supply or signal cables. This test simulates interference caused, for example, by the operation of inverters or other electronic boards.

These disturbances are normally responsible for incorrect readings of analogue values (such as temperature, humidity and pressure), interfering with the correct operation of the system.

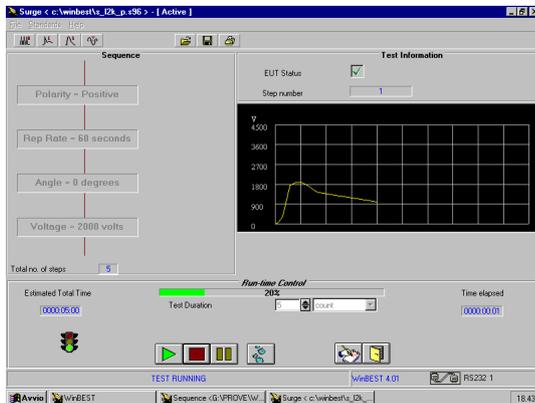
ESD Testing

Test to ensure immunity from electrostatic discharges generated by a dedicated device. The human body or insulating materials can build up electrostatic charges which, when they come into contact with the machine's metal panels, can lead to a discharge of static electricity which can prejudice the correct operation of the electronics.

These discharges can lead to operating parameters being deleted, displays malfunctioning, or in some cases, even damage to parts of the IC.



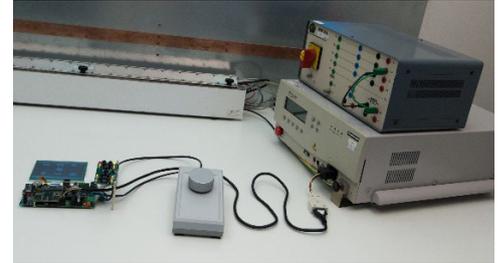
Burst Tests



Simulations are performed of inductive loads (motors, contactors, relays) being switched on and off by injecting disturbances directly into the power supply cable or signal cables.

Prove di Surge

High-energy pulses are sent to the machine. This test simulates, for example, a lightning strike in proximity to the power supply network, or faults in large machines operating on the same network.



Emissions testing of radio frequencies carried over the power cables

The radio frequencies emitted by the electronics on the power supply cable are measured.

Power supply fluctuation testing

Tests to determine immunity to voltage drops, brownouts and supply voltage variations. These events can lead to malfunctions in the electronics and the loss of data and operating parameters.

Micro Systems' electronics are designed to be immune to this kind of damage and to resume operation automatically once the supply voltage has been restored.

Radio frequency emissions testing

The radio frequencies emitted by the electronics are assessed.



Climate Chamber Testing

In order to ensure that our products will withstand all ambient conditions.

We perform further tests inside a climate chamber which subjects them from temperatures ranging from -20°C to $+70^{\circ}\text{C}$ with humidity between 10 and 90%.



Infra-red Imaging



The operating temperature of the board's various components influences their average lifetime. Excessively high temperatures can significantly reduce the lifespan of the components and compromise their general reliability.

Thermal analysis highlights the system components with the highest operating temperatures. Subsequent analysis of the board's design checks that these temperatures are within the design operating range.

SELECTING THE BEST ELECTRONIC COMPONENTS

In order to ensure that the components we use meet the high quality standards we have set for ourselves, they undergo a type-approval procedure.

The type approval of new components consists of a complete series of laboratory tests and close monitoring of their behaviour in the field for at least a year.

STORING COMPONENTS AT CONTROLLED HUMIDITY LEVELS

Storing SMD electronic components in normal warehouses, where the levels of relative humidity are not controlled, can irreversibly compromise their long-term reliability.

The water molecules can penetrate the components, and then by expanding following the soldering process can cause malfunctions even well into the future.

DUAL PRODUCT OPERATING TESTS

This important procedure is performed on all electronic boards we manufacture, not just samples.

Functional testing is performed on all products via the use of automatic workstations which are able

to minimise human error. As well as testing their operation, the electronic boards are left running for a sufficient number of hours to test all critical components.

INSULATING PAINT

The application of a protective coating which protects the surface of the circuit board from dust, corrosive agents or atmospheric humidity.

Without such protection, the combination of dust and moisture could create unwanted connections between the PCB tracks and electronic components, leading to inevitable malfunctions.