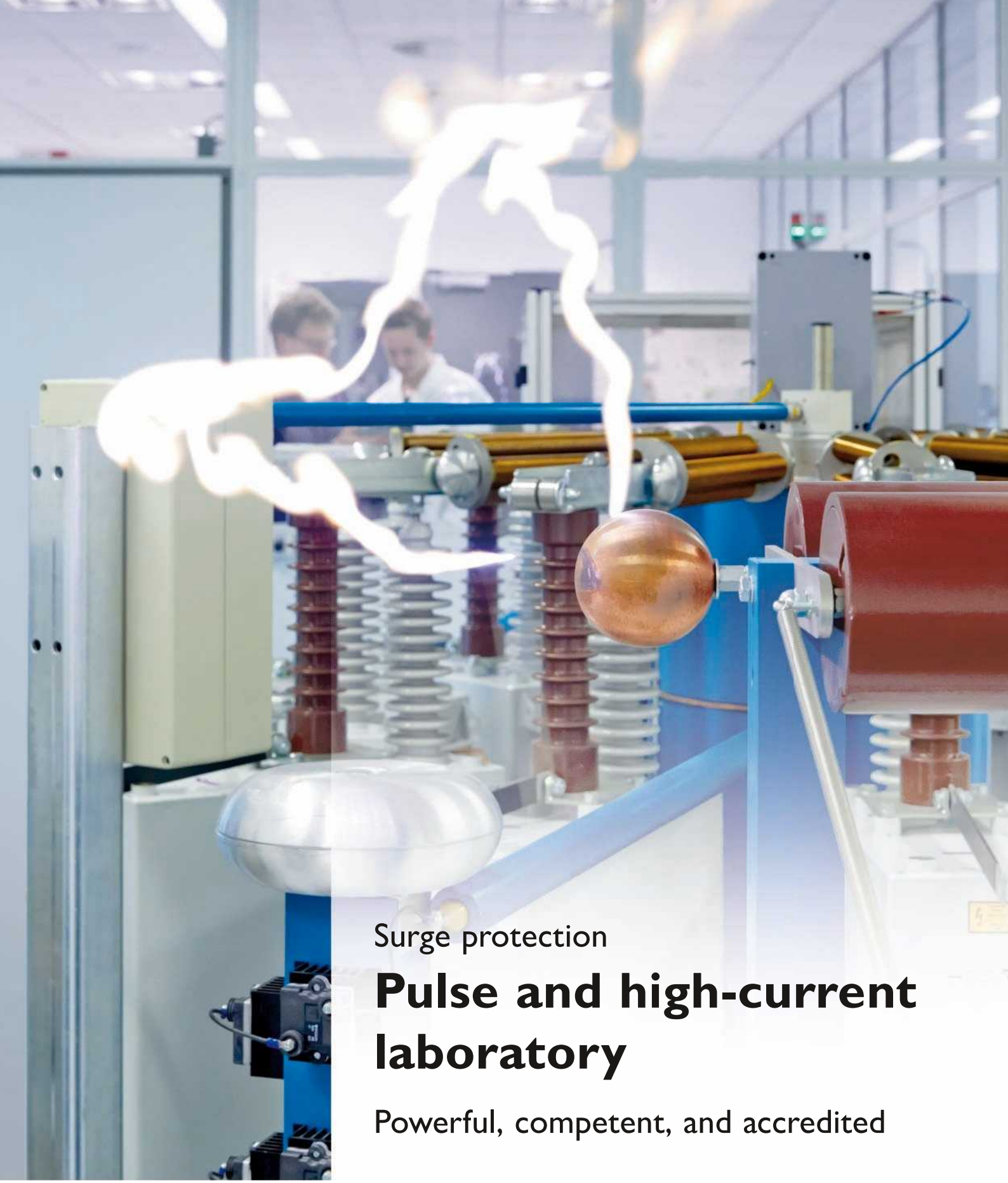


Surge protection

Pulse and high-current laboratory

Powerful, competent, and accredited

PHOENIX CONTACT
INSPIRING INNOVATIONS

The accredited testing laboratory

Phoenix contact offers innovative technologies, products, and solutions for all aspects of electrical engineering and automation.

The TRABTECH business unit concentrates on fundamental research in the area of surge protection as well as the development and production of corresponding protective devices.

In a 1300 m² space, the company operates a modern, powerful, and accredited laboratory, specially for the testing of surge protective devices. Here, among other things, disruptive events can be imitated, such as those that can occur in the event of lightning strikes, switching operations or electrostatic discharges.

Our range of services comprises:

- Complete testing of lightning arresters and surge protective devices according to the IEC/EN 61643-11, EN 50539-11, IEC/EN 61643-21, and UL 1449 standards
- Lightning strike surge current testing with a pulse shape (10/350) µs with an amplitude of up to 100 kA
- Surge current testing with a pulse shape (8/20) µs up to an amplitude of 200 kA
- Verification of the effectiveness of surge protection concepts based on IEC/EN 61643-12
- Testing the dielectric strength with a power-frequency withstand voltage of up to 8 kV
- Single and three-phase short circuit current tests up to ...
  ... 50 kA up to 500 V/50 Hz
  ... 25 kA up to 1000 V/50 Hz

The right equipment for powerful testing

The testing equipment in the laboratory is able to generate surge currents and surge voltages with different pulse shapes. Even mains frequency short-circuit currents and DC currents can be generated, by means of the finely adjustable voltage.

One special feature of the laboratory is that the high-performance power supply system can be coupled with surge current generators. As such, a realistic environment is created for testing surge protective devices.

Controlling large currents

High short-circuit currents can be led with a low inductance current rail system.

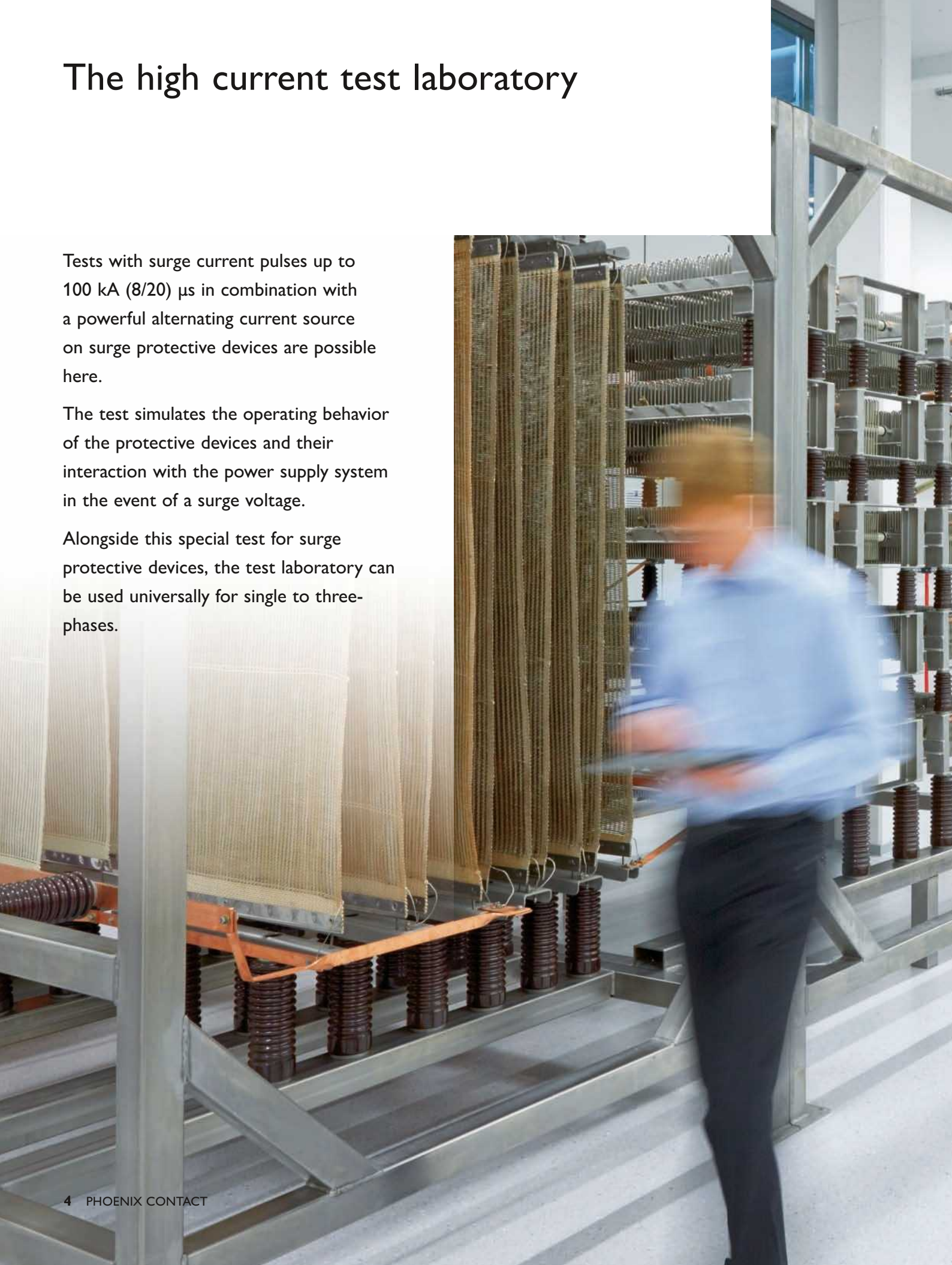
The finely adjustable testing transformers provide a high level of voltage variance.

The high current test laboratory

Tests with surge current pulses up to 100 kA (8/20) µs in combination with a powerful alternating current source on surge protective devices are possible here.

The test simulates the operating behavior of the protective devices and their interaction with the power supply system in the event of a surge voltage.

Alongside this special test for surge protective devices, the test laboratory can be used universally for single to three-phases.



Finely adjustable setting options

- Voltage: 100 to 1,000 V
- Current: 100 A to 50,000 A
- Power factor: 0.2 to 0.95

The system is supplied by a three-phase test transformer with 8.4 MVA nominal power.

At the 30 kV medium voltage and low voltage level, the current can be finely adjusted using different impedance modules.

Modern test environment

The large testing hall enables large, practical test setups.

The generators create surge currents in the pulse shape (8/20) µs up to 200 kA.

Surge current testing technology

The surge current testing systems generate lightning currents in the waveform (10/350) µs up to 100 kA and surge currents in the waveform (8/20) µs up to 200 kA, thereby enabling surge protective devices of the highest performance class to be tested in line with regulations.

In order to generate the pulses, energy is provided at 141 kJ, which is taken from a capacitor bank with 44 µF and a maximum charging voltage of 80 kV. A measuring data acquisition system with modular design and a high scanning rate supplies the extremely precise measuring data.

Lightning surge current generator

Direct current testing technology

The DC testing system functions autonomously and consists of a high-performance DC source as well as a special pulse current generator. This generator is set up to precisely meet the requirements in the field of direct current testing technology.

The system offers the option of coupling power pulse currents (8/20) µs into the DC system, in order to qualify the surge protective devices for DC applications.

This system, among others, permits tests according to EN 50539-11, "Requirements and tests for surge protective devices for use in photovoltaic systems".

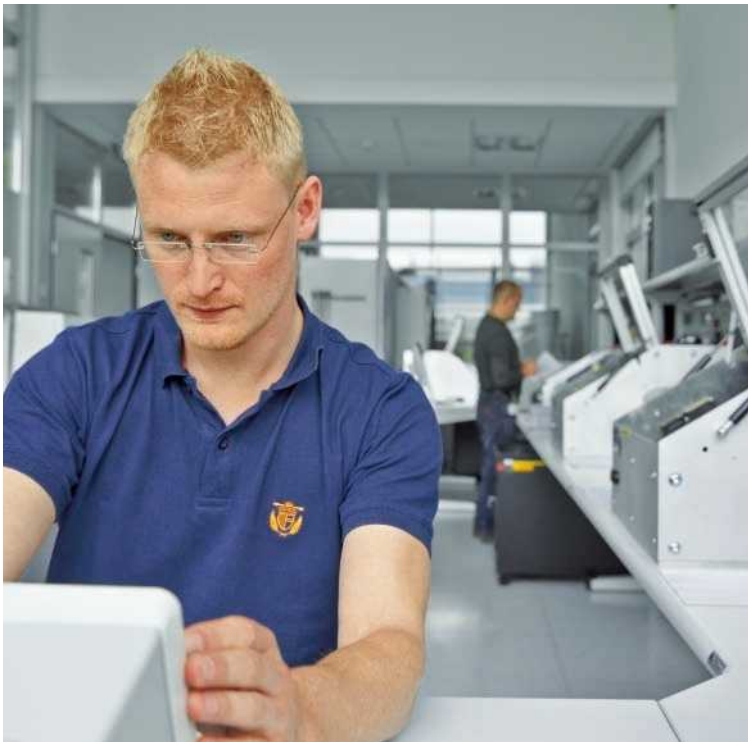
The DC source is also used for tests with short-circuit currents up to 2,700 A. The current can be adjusted in 1-Volt increments up to 1,800 V DC.

Direct current testing system

Automated testing

Automated testing plays a key role in terms of the success of a cost-effective testing operation. The focus is thereby placed on time-consuming testing processes. Such processes are particularly relevant to IEC/EN 61643-21, surge protective devices for use in telecommunications and signaling networks.

The testing systems developed in-house are equipped with innovative automation technology, which controls and monitors the entire testing process. The testing system documents and analyzes the measured values and then creates a meaningful test report.



Testing systems for automated testing

Accredited according to DIN EN ISO/IEC 17025

The testing laboratory is accredited based of DIN EN ISO/IEC 17025. This standard describes the "General requirements in terms of the competence of testing and calibration laboratories". The Deutsche Akkreditierungsstelle (German accreditation body) has verified and confirmed that the requirements of ISO 17025 have been implemented and adhered to.

DAkkS
Deutsche
Akkreditierungsstelle
D-PL-12161-03-00

The accreditation certifies:

- Specialist and technical competence
- Effective management system for quality assurance
- Independence and impartiality regarding third parties

Test reports from accredited testing laboratories are widely accepted internationally.

Always up-to-date, always available to you. Here you'll find everything on our products, solutions and service:

phoenixcontact.com

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