Automations- und Prüfsysteme

ElMeS™ high-voltage DC tester

...as a built-in device

The processor-controlled and fully electronically regulated ElMeS™ high-voltage DC tester enables high-voltage testing and insulation measurement to be carried out in just one test step. A precise high-voltage source allows the charging process of the specimen to be current-controlled. With integrated voltage monitoring and a monitored discharge function, the ElMeS™ high-voltage DC tester is perfect for semi-automatic and fully automatic testing. For integration into automatic test sequences, the ElMeS™ high-voltage DC tester has various options for contact monitoring. This ensures that the specimen is connected to the tester. The ElMeS™ high-voltage DC tester is easy to use thanks to an integrated LC display as well as a convenient web interface for operation and monitoring.

Advantages

- Fast test voltage rise for a shorter cycle time
- Extremely low overshoot during voltage rise
- Precise voltage regulation
- HV and insulation measurement in a single test step, which reduces the cycle time
- Web interface as control interface for easy diagnostics
- Can be operated using the built-in LCD and keypad
- DC measurement
- Compact housing
- Protection of the specimen
- Operation via Ethernet Modbus TCP/IP
- No fan, so requires no maintenance
- Suitable for continuous operation for long-term measurements

ElMeS™ – high-voltage DC tester

Technical data		
Test voltage (DC)	Tolerance	±2.5 V from the target value
	Ripple	At 100 V = 1 Vpp, at 1000 V = 2 Vpp, at 10,000 V = 5 Vpp
	Ripple factor	At 200 V < 1.0%, at 1000 V < 0.5%, at 2500 V < 0.5%
	Rate of rise	100 V/s – 99 kV/s
	Discharge internal resistance	100 MΩ, with HV performance box 1.6 MΩ
	Charge at the output	< 350 mJ *
	Overload protection	Current limitation < 10 mA
	Duty cycle	100%
	Output insulation	±150 V (max. voltage difference between GND output and PE)
Test voltage evaluation	Measuring range	12,000 V
	Uncertainty of measurement	±1.5 V from actual value
	Resolution	1 V
Power evaluation	Measuring ranges	Range 1: 0 to 200 µA Increment of 1 nA Range 2: 0 to 10 mA Increment of 1 pA
	Uncertainty of measurement	Range 1: From 0.5 µA to 200 µA 1% of measured value Range 2: From 10 µA to 20 µA 1% of measured value 20 µA to 10 mA 0.5% of measured value
Resistance evaluation	Measuring range	240 GΩ
	Uncertainty of measurement	At 100 V per 50 MΩ < 1% of actual value At 100 V per 100 MΩ < 2% of actual value At 100 V per 1 GΩ < 5% of actual value At 100 V per 2 GΩ < 15% of actual value
	Resolution	1 kΩ
Test period	Adjustment range	0–9999 s
	Measurement technology	Two-wire measurement technology with guard for current measurement input

General data		
Interfaces	Ethernet	Ethernet http, web interface, data transmission in JSON format
	Status indication	4 LEDs
	LCD	Dot matrix graphic display
Power supply	Input voltage range	100 to 240 V AC, 50 to 60 Hz
	Power consumption	Max. 150 VA
	Internal protection	Fine-wire fuse 5 x 20 mm, T4A
	Overvoltage category	II
Mains connection	Plug with switching characteristic: Neutrik powerCON NAC3FX-W-TOP	
Dimensions and weights	Dimensions	275 mm x 95 mm x 200 mm
	Weight	2.3 kg
Degree of protection	IP20	
Operating conditions	Ambient temperature	+5 to +40 °C
Relative humidity	Max. 80% non-condensing	
Acceptance	Type testing according to DIN EN 61010-1 by TÜV Süd	

Equipment		Tabletop test rig	Universal test rig
Secured test room		✓	✓
Specimen feed	Drawer	✓	✓
	Manual rotary indexing table		✓
Integrated emergency stop circuit		✓	✓

ElMeS™ as a high-voltage DC tester

Installation situation in the control cabinet

Universal test rig with built-in ElMeS™ high-voltage DC tester

* According to DIN EN 50191 (VDE 0104) "Erection and operation of electrical test equipment", the standard need not be applied if the discharge energy is > 350 mJ or the current caused by the voltage is < 12 mA for DC voltage. The requirements for the discharge energy (< 350 mJ) and the safety current limitation to < 12 mA are fulfilled by the tester itself. Within a test station, however, the energy content of the test equipment and the specimen must also be taken into account. This can lead to discharge energies > 350 mJ and discharge currents > 12 mA at an induction-free 2 kΩ resistor, meaning that DIN EN 50191 (VDE 0104) must then be applied and, consequently, suitable safety equipment may be required.

BDG
Automations- und Prüfsysteme | Dornäckerweg 18 | 74653 Künzelsau-Amrichshausen | Germany
Tel. +49 (0) 7940 98120 0 | Fax +49 (0) 7940 98120 50 | info@bdg-online.de | www.bdg-online.de