

HV DAC-200

Test and diagnostics system for high voltage cables

Megger[®]



- Designed for testing and diagnostics on cables rated up to 132 kV
- Multifunctional: cable withstand testing & PD Diagnosis in a single system
- Allows a monitored commissioning test acc. to IEC 60840 and IEEE 400.4
- Highly adaptable thanks to the portable design

DESCRIPTION

The HV DAC-200 is a DAC (Damped AC Voltage) test set with a peak voltage of 200 kV. The test set can be used for acceptance testing on cables rated up to 132 kV according to the IEC 60840 and IEEE 400.4 standard. Moreover, the unit can also be used for condition analysis of aged cable circuits.

The main use of the DAC test set is to identify, evaluate and locate partial discharge (PD) faults in the cable insulation and accessories of all types of high voltage power cables. PD activity is an indication of incipient faults in the insulation and is therefore widely regarded as one of the best 'early warning' indicators of the deterioration of medium and high voltage insulation.

Since the DAC frequency of the test voltage is close to nominal AC service conditions, all measured PD activities can be effectively evaluated and are comparable with the power frequency. The PD inception voltage (PDIV) and PD extinction voltage (PDEV) can be easily determined due to the decaying amplitude of the test voltage.

Partial discharges are regarded as the main breakdown cause for HV cables.

Performing offline PD measurements on HV cables using a DAC voltage helps support the asset management process so that reliable decisions can be made for maintenance or replacement activities.

The system consists of a notebook as a control unit and an HV part. The HV part contains of an HV source, an electronic switch and a resonance inductor to generate a damped AC test voltage. The HV divider and the coupling capacitor for PD detection and localization are integrated in a separate unit.

The operating SW guides the user through the entire process. Some key features are:

- Integrated cable data base
- Fully automatic calibration
- "Live" PD mapping; evaluation and display of results during the actual measurement
- Reporting by mouse click

The individual units are stored in tough transport cases which also allow for air-transport.

Via the optional PD free support capacitor it is also possible to test short cable lengths with a frequency below 300 Hz.

TECHNICAL DATA*

HV DAC-200

Output voltage	
DAC	18 ... 141 kV _{RMS} / 25 ... 200 kV _{peak}
Precision	± 1 %
Resolution	0.1 kV
Frequency range	20 Hz ... 300 Hz
Capacity range	0.035 µF ... 8 µF at 200 kV _{peak}
Charging current	20 mA
PD sensitivity range	2 pC ... 100 nC (acc. to IEC60270)
System noise level	< 2 pC
PD pulse Rep. rate	100 kHz
Coupling capacitor	20 nF
PD localisation	
Measuring range	0 ... 16,000 m / V/2 = 80 m/µs
Propagation velocity v/2	50 ... 120 m/µs
Sampling rate	125 MHz (8 ns)
Bandwidth	3/25 MHz (switchable)
Precision	1 % of the cable length
Resolution	± 1 pC / ± 1 m
Filter	Analog and digital
Input voltage	400 V ± 10%, 3 pH, 50/60 Hz, 4 kVA
Temperature	
Operation	0 °C ... 55 °C
Storage	-20 °C ... 70 °C
Relative humidity	93 % at 30 °C (non-condensing)
IP rating	IP00
Weight	app. 1050 kg (incl. flight cases)
Components	
Unit 1	HV source
Unit 2	HV switch
Unit 3	HV coil (3 modules)
Unit 4	HV divider / PD analyzer
Unit 5	Accessory box 1
Unit 6	Accessory box 2

FEATURES AND BENEFITS

- High testable capacity
- Transportable and compact
- Short set-up times allowing to response quickly on changing weather conditions
- Automatic PD measurement with live evaluation
- Low space requirements allowing to set-up even in small substations
- Low power consumption
- Breakdown detection

SCOPE OF DELIVERY

- HV DAC-200 incl. flight cases
- Laptop and software license
- PD Calibrator
- HV connection tube 7.5 m (DN100)
- Mains cable, grounding cables and control cables
- Operating manual

ORDERING INFORMATION

Product	Order no.
HV DAC-200	1006485-S
<i>Options:</i>	
SC20020, Support capacitor 200 kV, 20 nF	1010834
HV connection tube DN 100 5 m	2006462
HV connection tube DN 100 7.5 m	2006461
HV connection tube DN 100 10 m	2006463
HV connection tube DN 100 15 m	2012943
Accessory box 3 (for additional HV connection tubes up to 15 m (DN 100))	90014144
Accessory box 4 (for additional HV connection tubes up to 7.5 m (DN 100))	90014146

* We reserve the right to make technical changes.

SALES OFFICE

Megger Limited
Archcliffe Road Dover
CT17 9EN England
T +44 (0) 1304 502101
E UKsales@megger.com

HV-DAC-200_DS_EN_V03

www.megger.com
ISO 9001
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