# MV DAC-30

## Test and diagnosis system for medium voltage cables

- **Safest operation as of fully save to touch metallic enclosed housing with integrated voltage source and PD detector**
- **Uses well proven DAC voltage for PD measurements (acc. IEC 60270)**
- **“Live” evaluation and display of results**
- **As of two-part design easy to transport**

### DESCRIPTION

The MV DAC-30 is a DAC (Damped AC Voltage) test set with a peak voltage of 30 kV. The test set can be used for quality control on newly installed cables, according to IEEE 400.4 standard. In addition, to prevent unplanned outages, the unit can also be used for condition monitoring purposes on 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 medium 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.

Partial discharges are regarded as the main breakdown cause for MV and HV cables. Performing offline PD measurements on MV and HV cables using a DAC voltage helps support the asset management process so that reliable decisions can be made for maintenance or replacement activities.

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.

The system consists of a notebook as a control unit and the HV part. The HV part contains of two units allowing easy transportation and set-up. One of the unique features of the MV DAC-30 is that the HV part consists of a voltage source with internal PD detector. During testing no other “live” components apart from the cable being tested are accessible like with other PD measurement systems.

The operating software 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

## TECHNICAL DATA*

### MV DAC-30

| | |
|---|---|
| **Output voltage** | |
| **DAC** | 3 … 30 $kV_{peak}$ |
| **Precision** | ± 1 % |
| **Resolution** | 0.1 kV |
| **Frequency range** | 20 ... 500 Hz |
| **Capacity range** | 1 µF ... 10 µF at 20 $kV_{peak}$<br>1 µF ... 4,25 µF at 30 $kV_{peak}$ |
| **PD sensitivity range** | 2 pc … 100 nC (acc. to IEC60270) |
| **Resolution** | ± 1 pC |
| **System noise level** | < 20 pC at 30 $kV_{peak}$ |
| **PD impulse repetition rate** | 100 kHz |
| **PD localisation** | |
| **Measuring range** | 0 … 16000 m / V/2 = 80 m/µs |
| **Propagation velocity** | 5 … 120 m/µs |
| **Sampling rate** | 125 MHz (8 ns) |
| **Bandwidth** | 3/25 MHz (switchable) |
| **Precision** | 1 % of the cable length |
| **Resolution** | ± 1 pC / ± 0.1 m |
| **Filter** | Analog and digital |
| **Input voltage** | 110/230 V, 50/60 Hz, 500 VA |
| **Temperature** | |
| **Operation** | - 20 °C … 55 °C |
| **Storage** | - 30 °C … 70 °C |
| **Relative humidity** | 93 % at 30 °C (non-condensing) |
| **IP rating** | IP 20 |
| **Weight** | |
| **HV module** | 30 kg |
| **Control module** | 25 kg |
| **Dimensions (W x D x H)** | 56 x 42 x 100 cm |

## FEATURES

- Fully save to touch, metallic enclosed housing
- Internal PD Detector
- "Live" evaluation and display of results
- Easy to transport as of two-part design
- VDE conform control and safety concept
- High testable capacity

## ORDERING INFORMATION

| Product | Order no. |
|---|---|
| **MV DAC-30**<br>MV DAC-30 control and HV unit, laptop, calibrator, SW license, set of cables (incl. 5 m HV-connection cable) | **1006132-S** |
| Options: | |
| **HV-connection cable 5 m** | **2006817** |
| **HV-connection cable 10 m** | **2008839** |
| **HV-connection cable 15 m** | **2008840** |
| **Rugged flight case for control unit** | **90017826** |
| **Rugged flight case for HV unit** | **90017827** |

* We reserve the right to make technical changes.


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**ISO 9001**