

Powering the Way

To A Better Tomorrow



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TV30

DAC Test and diagnosis system
for MV cables

TV30 DAC Test and diagnosis system for MV cables



- ◆ Compact and lightweight, one-unit solution
- ◆ Easy WIFI or wired based automatic control
- ◆ Built in Time Domain Reflectometer(TDR)
- ◆ Software support OTA
- ◆ Uses well proven DAC excitation voltage for PD measurements (acc. IEC 60270)
- ◆ Fully integrated dissipation factor(Tan Delta) measurement at DAC voltages
- ◆ All in one testing and diagnosis of cables up to 20 kV
- ◆ It can be easily fit into a car/ small van with a cargo load below 100kg

Introduction

The TV30 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, repaired or service-aged MV cable systems with reliable results and an appropriate assessment of the condition of the cable insulation as well as of the accessories. This is the key to successful operation of the distribution and transmission networks.

DAC voltage test and diagnostic measurements (PD and TD) provide for reliable detection of poor installation, failures due to inappropriate laying, failures in accessories or deterioration in cable insulation due to aging. It allows much more than a simple “go or no-go” decision. DAC testing is an advanced maintenance tool which supports asset management and grid operation as well.

Applications

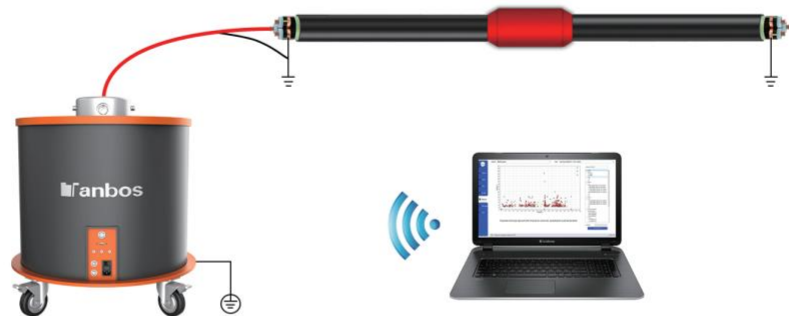
- ◆ After-laying testing of newly installed or repaired cable systems
- ◆ Routine testing and diagnostics for assessment of service-aged cables
- ◆ PD monitored voltage withstand testing and non-destructive diagnostic testing
- ◆ Comprehensive PD measurement capabilities according to IEC 60270, IEC 60885-3, IEEE 400.3



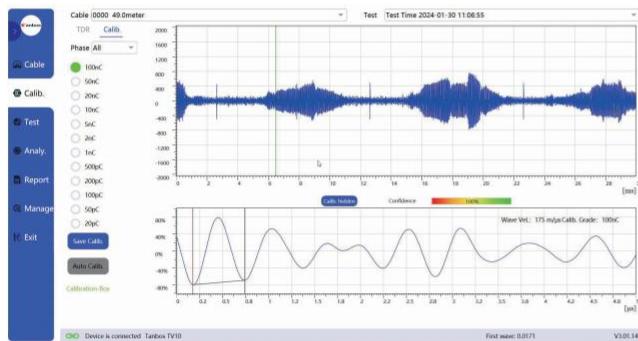
Time-saver at your service for cable diagnostics: Connect — Automatic — Inspect

The on field test is very simple, after the connection between TV30 and cable is completed, the operating software will guide you through the entire process.

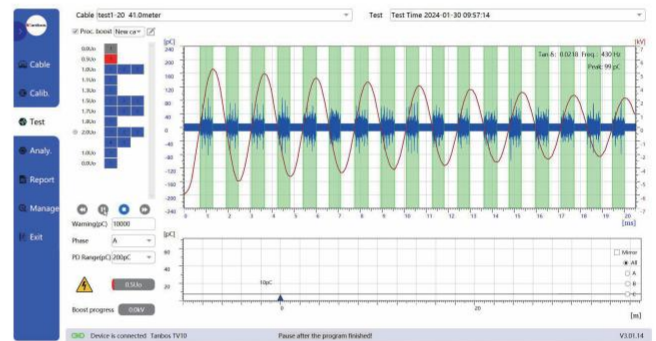
Connect: After the necessary inspections and pre-tests are completed, only need few connections about DAC test.



Automatic: Second step is just follow the steps of operating software, only need to input some necessary parameters of tested cable, others system will complete it automatically.



Calibration

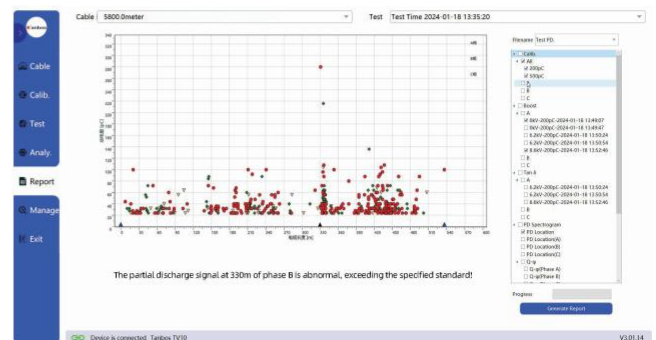


Automatic test

Inspect: The test and diagnosis will performed, live PD mapping will automatic displayed on the screen. You only need to check the results and choose whether to output a test report.



Analysis the PD mapping



Test report

Technical data of TV30

Input voltage	220V AC $\pm$ 10%, 50Hz
Output voltage	
DAC	0-30kV(peak) / 0-21.2kV (rms)
Precision	$\pm$ 1%
Resolution	0.1kV
Frequency range	20Hz~500Hz
Capacity range	1nF ... 10 μ F at 20kVpeak 1nF ... 4.25 μ F at 30kVpeak
PD sensitivity range	2pC ... 100nC (acc. to IEC60270)
Resolution	$\pm$ 1pC
System noise level	< 20pC at 30kV(peak)
PD localisation	
Measuring range	0 ... 20,000m
Propagation velocity	5 ... 120m/ μ s
Sampling rate	200 MHz
Bandwidth	150kHz ~ 45MHz, automatic adjustment
Precision	1% of the cable length
Resolution	$\pm$ 1pC / $\pm$ 0.1m
TD(Tan Delta) test	
Measuring range	0.1% ~ 10%, automatic adjustment
TDR joint localisation in calibration mode	Integrated
Software	User selectable graphical interface, online "live" PD Mapping integrated measurement Database, comprehensive viewing processing, analysing and reporting of measurement data
Temperature	
Operation	-20 °C ... 55 °C
Storage	-30 °C ... 70 °C
Relative humidity	93 % at 30 °C (non-condensing)
Weight	78 kg(net)
Dimensions	Ø 690 x H 720 mm



Standard accessories of TV30

DAC Main Unit

Generate damped AC voltage and PD test



Compensation Capacitor

Use when the tested cable is too short



Control PC

Control the whole system



Emergency Stop Box

Control HV unit remote



Calibrator

Calibrate cable length or propagation velocity



HV Cable

Connect the HV unit and the tested cable



Ground Cable

Grounding



Compensation Capacitor Connection Line

Connect compensation capacitor and HV unit



Discharging Rod

Discharge after testing



Emergency Stop Box Wire

Connect emergency stop box and HV unit



Calibration Wire

Connect calibrator and HV unit



Network Cable

Connect control laptop and HV unit



Charger

Calibrator charger



power Cable

Provide power supply



Voltage Equalizing Cap

Voltage equalization at cable ends

